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CIS

JAPANESE AND AMERICAN ECONOMIC POLICIES AND U.S. PRODUCTIVITY

HEARINGS

BEFORE THE

SUBCOMMITTEE ON MONETARY AND FISCAL POLICY

AND THE

SUBCOMMITTEE ON TRADE, PRODUCTIVITY, AND ECONOMIC GROWTH

OF THE

JOINT ECONOMIC COMMITTEE
CONGRESS OF THE UNITED STATES

NINETY-SEVENTH CONGRESS

FIRST SESSION

JUNE 23 AND JULY 28, 1981

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JAPANESE AND AMERICAN ECONOMIC POLICIES AND U.S. PRODUCTIVITY

TUESDAY, JUNE 23, 1981

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON MONETARY AND FISCAL POLICY
OF THE JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 9:30 a.m., in room 1318, Dirksen Senate Office Building, Hon. Roger W. Jepsen (chairman of the subcommittee) presiding.

Present: Senator Jepsen and Representative Richmond.

Also present: Charles H. Bradford, assistant director; and Douglas N. Ross and William R. Buechner, professional staff members.

OPENING STATEMENT OF SENATOR JEPSEN, CHAIRMAN

Senator JEPSEN. Good morning. It's a great pleasure to me this morning and an honor to welcome a most distinguished and knowledgeable panel today: Mr. Yawata, who is president of NEC Electronics U.S.A., Inc., and former general manager of the International Electron Devices Division of Nippon Electric Co., Ltd. and Mr. Hague who is director for Asia of the Borg-Warner Corp. and former president of the American Chamber of Commerce and member of the Asiatic Pacific Counsel, very impressive credentials.

We have asked these distinguished gentlemen to assist this subcommittee and Congress in developing economic policy initiatives that will stimulate long-term U.S. economic growth. We want to focus on what might be called "Japanese industrial policy" and ask what kind of Japanese economic measures with respect to taxation and capital formation, Government regulation, business, government, labor relations, research and innovation and others can be intelligently and sensitively applied in the United States; or, to put it in language that I can better understand, we are interested in how come your productivity is higher than ours.

Today's hearing is the first in a series of deliberations, gentlemen, and I look forward to hearing your advice and suggestions and you may proceed, Mr. Yawata.

STATEMENT OF KEISKE YAWATA, PRESIDENT, NEC ELECTRONICS U.S.A., INC., SUNNYVALE, CALIF.

Mr. YAWATA. Mr. Chairman and gentlemen, I am honored to be invited by the subcommittee to testify on these issues.

My name is Keiske Yawata, and I am the president of NEC Electronics U.S.A., Inc., located in Sunnyvale Calif.

I was the general manager of the International Electron Devices Division of Nippon Electric Co., the parent company of NEC Electronics U.S.A., from 1977 until last month. The International Electron Devices Division is an organization which is responsible for the overseas marketing of electronic components manufactured by the Nippon Electric Co.

Prior to that period, I was a sales manager of the same organization from 1973 through 1976. Before that, I was an engineering manager, production manager, engineering supervisor, and integrated circuit design engineer between 1965 and 1972. In 1961 and 1962, I was a graduate student at the Electrical Engineering School of Syracuse University. I joined the Nippon Electric Co. in 1958, and I was engaged in the development of transistors until 1964, except for 1961 and 1962 during which period I took a leave of absence as an exchange student under the Fulbright scholarship program, and also the RCA David Sarnoff scholarship program. During the 2 years I was at Syracuse University, and received an M.S. in electrical engineering, I met many friends, both on campus and off campus, from whom I learned much about the American culture. I am very grateful to Senator Fulbright, who sponsored the Fulbright scholarship program, and to the late Gen. David Sarnoff of RCA.

Nippon Electric Co., Ltd., is headquartered in Tokyo, Japan, and was founded in 1899. The revenue for fiscal year 1980, ending March 31, 1980, was $4,033,532,000, with 60,755 employees as of the same date. The growth in sales was threefold during the 1970 through 1980 period, or 12.3 percent per year growth. The corporation has 70 domestic sales offices and 52 overseas offices. It also has 36 domestic manufacturing plants and 15 around the world.

NEC consists of six business groups; that is, the switching group, the transmission and terminal group, the radar group, the information processing and industrial systems group, the electron devices group which I'm associated with, and the consumer electronics group. The six groups are centered around the research and development laboratory, and each group consists of several business units. Their sales in 1980 were approximately $4 billion, of which 38 percent were in telecommunication products, 24 percent in EDP and industrial electronics systems, 21 percent in electron devices or electron components, 13 percent in consumer electronics, and 4 percent in miscellaneous.

Before I start discussing management principles and practices in Japan and in the United States, I would like to explain how we train the employees at Nippon Electric Co., Ltd.

As in other Japanese companies, we hire new graduates from universities and colleges in March. Last year we hired approximately 700 newly graduated people, and collective training was given to these graduates for a few months. Of the 700 newly graduated people, more than 600 were engineers. After the training period, they were assigned to various divisions and departments, and on-the-job type training was given in their first year.

A series of seminars is given to each white collar employee over his career life covering various management disciplines, including accounting, finance, patent, and personnel. The level of training advances as each employee continues in his career path. The seminar consists of lectures, case studies, computer gaming, and discussion. The participants must work very hard during these seminars, and oftentimes they study long hours and then discuss problems and opportunities until late at night. Issues are discussed concerning marketing, sales, international activities, and general management.

Blue collar employees also receive training on quality control, value analysis, human relations, cost analysis, and various other vital matters. Every employee is eligible for evening courses on a great many subjects, such as management, marketing, accounting, economics, engineering, foreign languages, business writing, and technical writing. These courses are given free, and a certificate is awarded when an employee completes a course. Thus, employees become highly motivated.

Next, I would like to turn to technology and quality control matters. In the semiconductor industry, where I have been working all my life, there are several kinds of engineering activities. One is called design engineering, and another is called process engineering. Design engineers are those who design circuits, and process engineers are those who design the process for fabricating such circuits. The circuits are fabricated on a piece of silicon, which we call an LSI—meaning large scale integration—chip

These design engineers and process engineers meet frequently to discuss problems they are having in designing or fabricating LSI chips. Sometimes brainstorming sessions are held to refresh their ideas. Many problem-solving methods have been developed to get everyone's ideas in shape.

When an LSI chip is first designed, it is evaluated in relation to the rules. Such evaluation is done in meetings with design engineers, quality control engineers, reliability engineers, process engineers, equipment engineers, and managers. The chip design is evaluated from every possible angle, so that the quality of the chip is assured and can be maintained in the fabrication process and in product performance.

The quality-control concept is emphasized by top management, starting with the president of the company. Each employee is trained to understand why quality control is necessary and to take pride in the quality of his or her work. I used to tell each one of the workers in my production department to imagine the customer who opens the package of LSI chips and tests them for quality and reliability. The customer will certainly be glad if the LSI chips pass the tests. He will appreciate the performance of the worker who fabricated the chip.

Quality is emphasized repeatedly throughout the corporation. Annual QC meetings are held to present papers on such issues as quality of LSI chips, or punching computer cards, or issuing purchase orders every day. Each one of the employees within the corporation is given a chance to present the nature and purpose of his work. When we say "quality," it is not only the quality of products, but also the quality of service, management, and daily work.

In our corporation, we have QC circle activity and each worker is a member of a QC circle. It is important not because of its form, but because of its spirit. Unless there is close communication between management and workers, there will be no improvement of quality resulting from suggestions by the workers. If the workers are only told what to do and are given no chance to suggest possible improvements, how can they be effective?

I hear that American workers must have clear definitions of their work, and they are not allowed to deviate from the assignments given to them. A human being stops thinking when he uses only his arms and legs, and not his brain. If he does not use his brain, he cannot think, hence he has no idea of how to improve his performance. If American workers are trained to both perform and think as humans, I am sure that the QC activity would be quite effective.

There is another aspect about the QC activity which takes place in small groups. The workers, engineers, and managers are all equal as humans, and any worker has the opportunity to become a foreman, supervisor, or manager, if his performance and contribution meet the test. The Japanese workers may be less class conscious than the American workers; therefore, the relationship between the management and workers is better in Japan. In the Japanese society, recognition and honor is often more important than monetary reward. Thus, recognition of a contribution from a QC circle is usually in the form of a certificate and a small token. The certificate is usually posted on the wall and remains there for a year or two, and the name is recognized and remembered by the fellow workers. If the token is in fact money, it is often pooled in a group or in a section, and used for a New Year's party or a pleasure trip.

We believe it is not the quality control department, but each employee that controls the quality, because the quality control department can only issue the quality standards and the procedures to check those quality standards at each check point—or go to the production floor and audit the quality of the products. We do not believe in quality control by detective methods, which involves making a lot of tests at various points in the manufacturing process. Rather, we believe that the quality should be built in—we believe in preventive quality control. Under the preventive control concept, each step of the manufacturing process is carefully designed, so that each step matches with the previous one and the following one. Thus, there is a continuity. This quality control concept is pushed throughout the manufacturing processes, not only in our own corporation but those of the suppliers of materials, parts, and components. If the preventive quality control is properly used, human errors are minimized and quality is built in. Thus, it may not be necessary to test the product.

The Western culture may not always allow people in subordinate positions to make suggestions to their managers. In QC circle activities, a group of workers get together before the work hour starts, or after it is ended, and each one of the circle members is asked to present his or her views about a problem in the work area, and then an idea to solve it, along with suggestions to improve productivity, use of materials, or other possible improvements in the manufacturing process.

Of course, ideas are discussed by the circle members and a consensus is obtained. Once a suggestion is in a proper form, it is submitted to the committee, which evaluates it. Then it is tested and if it is proven to be viable, it is implemented in the manufacturing process. This, in itself, is a recognition.

I would now like to look at management and human relations. There have been a lot of discussions about the Japanese management style versus the American style. But I think that successful corporations use a universal management style, not a Japanese or an American management style. The management philosophy should match the culture of the country where the corporation operates.

No Japanese management style can be transplanted directly to the United States because the Japanese management style as such does not necessarily fit in with the American culture. In the Japanese management style, maintaining morale and motivation of the workers is considered to be more important than their performance. By maintaining high morale, the performance of a group of workers is usually very good. The relationship between managers and employees, or between foreman and workers, or company management and labor unions, is not adversarial but rather it is cooperative. The relationship can perhaps be classified in three categories: One is lifetime employment; another is the seniority system; and the other is the labor union, which is unique to the Japanese system.

The lifetime employment concept is perhaps a modern form of the feudalism in the Samurai society; that is, a loyal Samurai does not serve two masters, meaning both employer and labor union. Whether this philosophy will be adopted by the younger generation which is under Western influence to a great extent is to be seen. So far they seem to be comfortable with it after they are employed and become familiar with it.

The seniority-based wage system is reinforced by the lifetime employment concept. There is an advantage in this to the employees, because their wages increase as their seniority increases, while expenses grow as their families grow.

Contrary to the industrial or trade union system, which is typical in the United States and in European countries, the Japanese labor union is organized within a corporation. The relationship between the labor union and corporate management is not adversarial as it is in the United States and Europe. It is a more cooperative effort, and wage increases are negotiated once a year, normally in the springtime. Also, improvements in labor conditions are negotiated until satisfactory results have been achieved.

Since the union is not based on craft or trade, a worker may be assigned two different types of jobs, so that his experience will be broadened. It is also characteristic to the Japanese union that a union member often becomes a company manager as he grows in his career path. When a university or college graduate is hired by NEC, it is compulsory that he become a union member. I was a union member for the first 12 years of my career with NEC.

In the Japanese culture, discussion is carried on to obtain consensus, and not to get the best of an argument or put someone in a corner. Participants in the discussions are asked to express opinions, and those opinions are discussed by everyone in the meeting. Thus, consensus is gradually formed. Such consensus-obtaining discussion is possible in a Japanese organization because there is constant communication across the corporation. In other words, there is horizontal communication between different divisions and departments in an organization in order to understand what other people are doing. The development of common understanding of the objectives of all departments makes it easier to get consensus.

I should like at this time to enter a caveat. The matters I have discussed here—QC circles, lifetime employment, the seniority wage system, consensus—are not a bag of tricks that may be copied by other companies in other countries in a short period of time. As I said earlier, they are a state of mind, and it took the Japanese years to develop them. After all, they have to do with very subtle and complex human relationships in the workplace. Finally, of course, they have much to do with the culture patterns of a given country, and they have to be adjusted in accordance with them.

Now I should like to tell you generally something about a day in the life of a division manager, such as myself, in the Nippon Electric Co. At 8:30 in the morning, everyone gathers in the office. I have about 100 people in my group. They stand up, and a leader who takes his turn in rotation directs the group in chanting a series of slogans for this particular division in challenging the day's work. Next, I have a division meeting starting at 9 a.m. to trace the performance of each section against the monthly budget.

It may continue for 2 hours. Besides tracing the performance against the budget, we discuss various problems faced by each section in the division. Then I read telexes from all overseas management people and give necessary instructions to my subordinates.

At noon, I go to lunch with one of my subordinates perhaps, and ask him or her about problems he or she may be having on the job or in private life. This establishes good human relations between everyone on my staff and myself.

In the afternoon, I meet a customer and discuss business matters. Then I go to a meeting with other division managers and their staffs to discuss important issues. We take up specific problems which require study, and assign each problem to someone in the meeting. After the day is over, I have a glass of beer or a cup of sake with a few friends or some of my staff in order to chat about the day or anything else that comes to mind. That establishes, again, good human relationships.

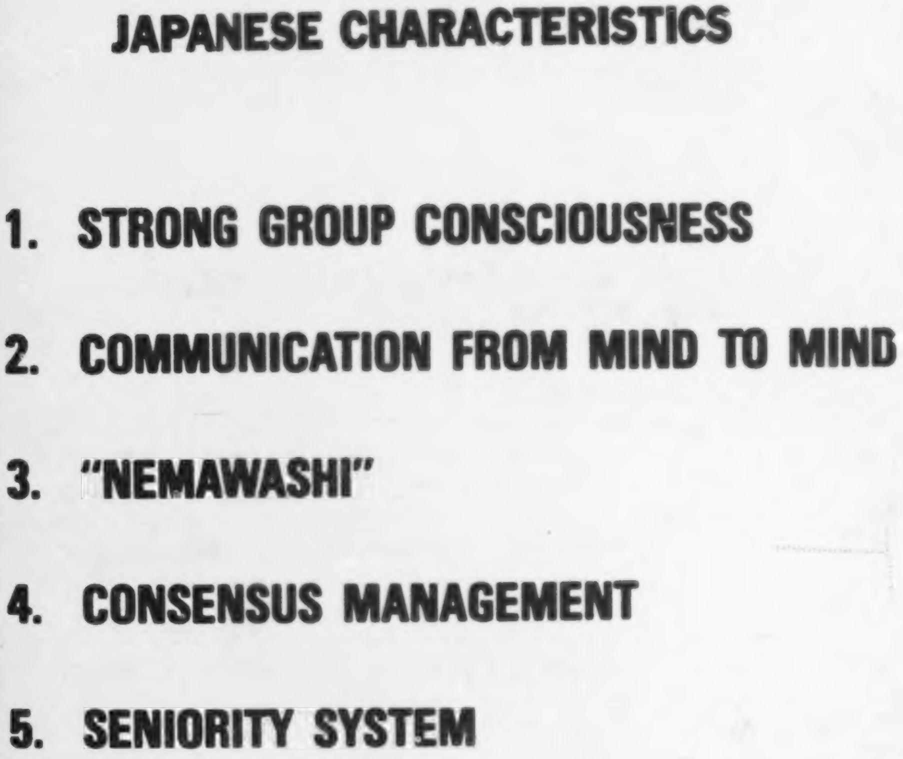
In summary, one must understand the process through which the Japanese management style has been developed in order to manage organizations successfully. Once again, the style itself may not fit into a different culture pattern without a great deal of effort, understanding, and alteration of technique.

For example, introducing QC circles or the consensus decisionmaking process as such into an American organization may not work successfully. The background and objectives of the organization must be carefully analyzed before a new management style is introduced. Since I have been named the president of NEC Electronics U.S.A., Inc., I am going to spend a good portion of my time in finding the right mix of the management style I have been used to in Japan, and the American management style which I am now learning, so that a successful United States-Japanese, or universal, management style may be developed—one which fits the culture of my new organization. I hope that the new management style we develop will be helpful to other American corporations.

I would like to use three slides to summarize.

[Slide 1.]

SLIDE 1



JAPANESE CHARACTERISTICS

1. STRONG GROUP CONSCIOUSNESS
2. COMMUNICATION FROM MIND TO MIND
3. "NEMAWASHI"
4. CONSENSUS MANAGEMENT
5. SENIORITY SYSTEM

Mr. YAWATA. In this slide, I have listed five Japanese characteristics. The first characteristic is strong group consciousness. As I pointed out earlier, the Japanese people demonstrate very strong group consciousness. They are loyal to whichever group they are part of, whether it is college, sports club, or corporation, or part of the corporation.

The second characteristic is communication from mind to mind. The Japanese people are not very good at communication in words. They think they can communicate without speaking. How can they do it? That is because of the strong group consciousness, and also uniform or monolithic culture, or homogeneous culture as it is called.

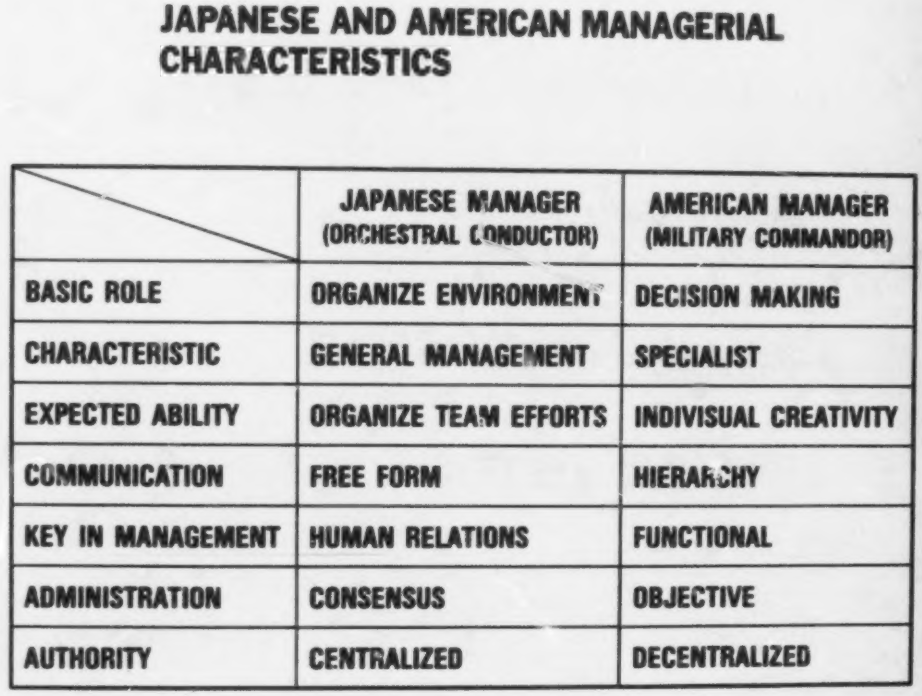
The third characteristic illustrated here is so-called nemawashi. Nemawashi is a term used by gardeners. When you transplant a large tree, you have to dig the root of the tree very carefully, and you have to wrap up the root so that the root is not cut. Therefore, nemawashi in a corporation is to have the groundwork done before a meeting is held with the top management or middle management or whichever level of management. Since the groundwork is done prior to the decisionmaking, consensus can be obtained very easily and quickly in the meeting. When the decision is implemented, everybody knows because of the nemawashi done prior to the decisionmaking, so the direction of the work is alined uniformly. Therefore, decisions can be implemented very quickly. It takes a great deal of time before making a decision in this fashion, but once the decision is made it is implemented very quickly.

The fourth characteristic is consensus management. Because of the nemawashi, it is easier and faster to get consensus, and once consensus is obtained everybody understands the situation, and the problems and proposed solution, so they are implemented very quickly.

The last characteristic is the seniority system, and I have already explained how that is managed. As the employee grows, his family grows, and his salary increases.

[Slide 2.]

SLIDE 2



JAPANESE AND AMERICAN MANAGERIAL CHARACTERISTICS

	JAPANESE MANAGER (ORCHESTRAL CONDUCTOR)	AMERICAN MANAGER (MILITARY COMMANDOR)
BASIC ROLE	ORGANIZE ENVIRONMENT	DECISION MAKING
CHARACTERISTIC	GENERAL MANAGEMENT	SPECIALIST
EXPECTED ABILITY	ORGANIZE TEAM EFFORTS	INDIVISUAL CREATIVITY
COMMUNICATION	FREE FORM	HIERARCHY
KEY IN MANAGEMENT	HUMAN RELATIONS	FUNCTIONAL
ADMINISTRATION	CONSENSUS	OBJECTIVE
AUTHORITY	CENTRALIZED	DECENTRALIZED

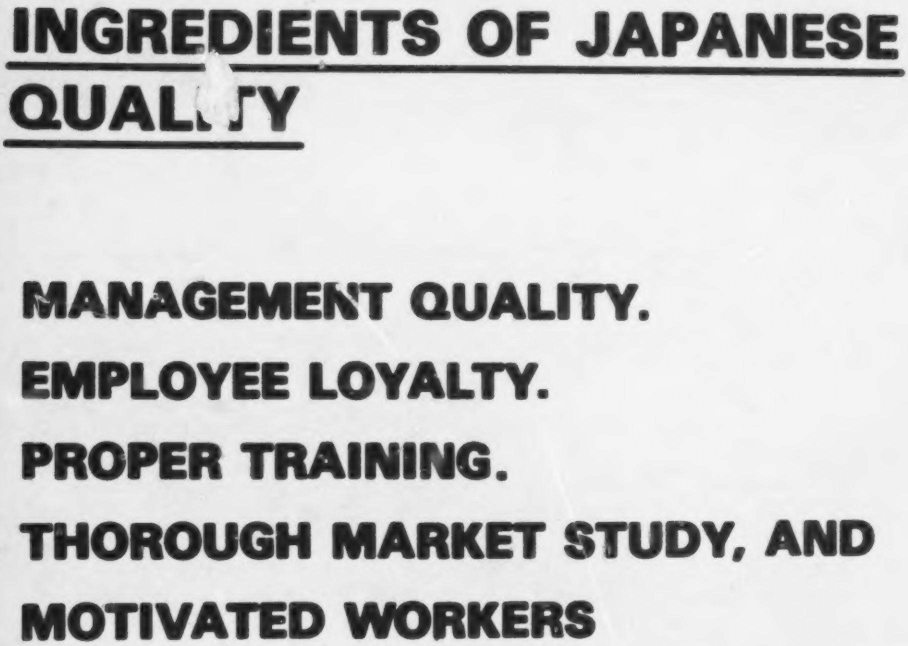
Mr. YAWATA. I have listed some Japanese and American managerial characteristics in this chart. The Japanese managers may be analogically compared to a conductor of an orchestra, and the American managers to a commander of an army. The basic role of the Japanese manager is to organize the people to form an environment in the corporation, and that of the American management is to make decisions.

The characteristics of the Japanese management are those of general practitioners and of the American management are those of specialists. The key point is placed in Japan on the ability to organize a team effort, whereas in the American system it is often placed on individual creativity. The organizational instruction system is free form in the Japanese system, and it is based on the hierarchy in the American system.

Therefore, horizontal and interdepartmental communication is free in the Japanese system, and almost everybody knows what is going on in the organization, and it makes their jobs understood more easily. Hence, the result is better. In the Japanese system the function is more highly respected. The Japanese management is organized on a consensus basis, whereas the American management is objective oriented. The authorization in the Japanese management is quite centralized; whereas in the American system it is more decentralized.

[Slide 3.]

SLIDE 3



INGREDIENTS OF JAPANESE QUALITY

MANAGEMENT QUALITY.
EMPLOYEE LOYALTY.
PROPER TRAINING.
THOROUGH MARKET STUDY, AND
MOTIVATED WORKERS

Mr. YAWATA. These are the ingredients of Japanese quality—the management quality, employee loyalty, proper training, thorough market study, and motivated workers.

As I have explained to you, gentlemen, the management quality is totalized throughout the system. In other words, from the president to the bottom of the hierarchy or bench workers, so-called, quality is managed totally. The concept is understood by everybody in the organization.

Because of the seniority system, we can develop employee loyalty in the organization and, as I explained, we give extensive training to each one of our blue collar and white collar workers.

Thorough market study is another characteristic of a Japanese corporation. In the development of any product or business, we go out to the marketplace, in Japan or overseas, and study what the consumer or the customers want. We find out what the competition is doing, and then go back and design products for the future that the marketplace will be demanding, because competitors are certainly planning new products for the future. By the time we come out with a new product the competition will have a new product also. So we have to be more long-term oriented.

The workers are motivated because of the proper training and extensive motivation programs.

Since QC circles motivate workers, they stay after work or they come to work before the work hour starts. They get together and discuss various problems from yesterday or from today's work, and each one of the group members is asked to present his or her case.

The groups are usually kept small and each group is given instruction on how to conduct such a meeting themselves. One of my friends who joined the Nippon Electric Co. in 1958, as I did, is now a quality control department manager. He campaigned for a total quality control system in the past few years in one of our subsidiaries in the Kyushu Island where we manufacture LSI chips, and after his campaign his factory was given the Deming Award.

As I explained to you, there is a quality control conference every year, where a worker, from a transistor assembly line for instance, may present his or her case concerning the improvement of quality. A lady was so honored with first place at a recent conference, which was the tenth annual quality control meeting of Nippon Electric Co. There was a Z design posted throughout the corporation. The Z program was introduced early in the sixties by the chairman of our company, and it is now used by each one of our employees.

Each QC circle records its performance by posting charts showing the median performance and also the variance. In other words, the performance of a product or process is plotted every day and then traced over an extended period of time. If it deviates too much, a corrective measure is taken by the QC circle. Thus, the performance of each QC circle is monitored and regulated within a certain range of performance.

Thus quality of product and performance is maintained uniformly.

We are most anxious to share any successes we may achieve with you, and we know we have much more to learn from you. After all, as Ambassador Mike Mansfield has stated: "America and Japan are the two most important trading partners in the world."

Thank you for your great courtesy and your kind attention and I will be more than happy to answer any questions you may have to ask.

Senator JEPSEN. Thank you for a delightful presentation, very informative. Your communications are excellent, easily understood, and that's an art and I congratulate you for it.

Mr. YAWATA. Thank you.

Senator JEPSEN. Before we go to Mr. Hague—we have other questions we would like to ask—what is your time element? Can you remain for a little bit?

Mr. YAWATA. By all means. I can remain until the hearing is over.

[The following study supplementing Mr. Yawata's testimony was subsequently supplied for the record:]

STUDY SUPPLEMENTING THE TESTIMONY OF KEISKE YAWATA

This study supplements the testimony of Keiske Yawata before the Subcommittee on Monetary and Fiscal Policy of the Joint Economic Committee on June 23, 1981, and concerns capital equipment depreciation, incentives on R. & D. from the tax point of view, incentive policy on new industry, incentive policy on export, and fund-raising for Japanese enterprise.

I. CAPITAL EQUIPMENT DEPRECIATION

There are four categories for capital equipment. They are: (1) building, (2) construction, (3) machinery and equipment, and (4) machine tool. Each of the four categories is subdivided according to structure or type, and application. They are classified as follows: (1) Building: structure of building (concrete, wood, etc.); application of building (school, hospital, etc.) (2) Construction: type of construction (antenna, tower, etc.); application of construction (communication; advertising, etc.) (3) Machinery and equipment: type of machinery (assembly, manufacturing, etc.); specific application of machinery and equipment (polishing, milling, etc.) (4) Machine tool: type of machine tool (handling, measurement, etc.), application of machine tool (volt meter, gas pressure gage, etc.)

The capital equipment depreciation scheme in terms of numbers of years is determined in accordance with the above classification. There are certain tax incentives, called "special depreciation," in determing the number of years over which the capital equipment is legally depreciated. The eligibility for such special depreciation is limited to medium to small firms, and major firms are not eligible. If a special need is seen, a bill may be passed for a specific sector of industry, and major manufacturing firms in that specific sector may have a joint research opportunity with the government. In this scheme, the entire investment which is made by the major manufacturing firms is allowed to be accounted as expense; therefore, no tax. The government administration usually shares one half of the total expenditure necessary for such a project. However, this one-half share from the government is to be paid back at a later time by each of the partner manufacturing firms when it becomes profitable in this particular sector of the business purpose. In this sense the Japanese system differs from what exists in the United States or Europe, where the amount of R. & D. expenditure itself may be tax deductible.

Depreciation of semiconductor manufacturing equipment is normally 7 years. There is special legislation for the atomic industry and integrated circuit industry, which is reviewed every 2 years. The integrated circuit manufacturers which are associated in the production of circuits containing one thousand or more elements on one chip may be depreciated in five years. The Ministry of Finance is proposing to make that 7 years, and MITI and the trade association hope to shorten it to 4 years in the next review.

II. TAX INCENTIVE POLICY ON R. & D. EXPENDITURES

There are two major policies. If a corporation makes R. & D. expenditures in excess of the greatest annual R. & D. expenditure in past years, then 20 percent of the difference between the R. & D. expenditure made in the current year and the greatest R. & D. expenditure made in the past years, and 10 percent of the corporate tax are compared, and the smaller of the two amounts is tax deductible. If a special structure added to a building or the building itself must be rebuilt in order to make a specially low temperature test or high temperature test, for example, for research or development purposes, then the expenditure necessary for such change or addition of structures may be depreciated in 5 years, which is much shorter than the depreciation for building or construction. Also, capital equipment needed for R. & D. may be depreciated in 4 to 7 years. Thus, capital equipment or capital expenditure for R. & D. made by corporations may be depreciated more rapidly than regular capital equipment or capital expenditures.

III. TAX INCENTIVE FOR NEW BUSINESS

There is no incentive policy for new businesses as such, but whether the business is new or current, the net operating loss may be carried forward, up to 5 years.

There used to be a special tax incentive policy for so-called declining industry, such as textiles or ship building, which was applied to corporations in such business sectors. There was special tax deduction for the expenditures made to change its activities from textiles or ship building to something else. However, this legislation became invalid at the end of 1980.

IV. TAX INCENTIVE POLICY FOR EXPORT

The application of export incentive is limited now that the Japanese corporations have achieved export competitiveness. Income from export technology may be deductible. The technology here is defined as: (a) industrial property, such as patent or technical know-how, (b) copyright, and (c) technical manpower.

Deductible income percentage for the export of each of these technologies is 28 percent, 8 percent, and 16 percent for (a), (b), and (c), respectively.

Another form of incentive for export is the overseas market development reserve. This is applicable to a corporation with less than 500 million yen of capital. If a manufacturing firm exports its products. 1 to 2 percent of the export amount may be reserved as an expense for overseas market development. The percentage depends on the amount of capital of the corporation. The third incentive scheme is for overseas investment which is called "overseas investment loss reserve." In this scheme, 12 percent of the total amount invested in developing countries may be accounted for as expense.

V. FUND RAISING METHODS USED IN JAPAN

First of all, the financial structure in Japanese and American corporations is compared in Table I and Table II.

TABLE I.—DEBT EQUITY RATIO (ALL INDUSTRY)

[In percent]

	Japan	United States
1972	14.4	53.5
1976	13.2	59.0
1978	13.6	58.0

Source: Bank of Japan, International Statistics.

TABLE II.—RATIO OF SHORT-TERM DEBT

[In percent]

	Japan	United States
1972	24.8	6.9
1976	24.6	7.0
1978	25.0	7.9

Source: Bank of Japan, International Statistics.

As is obvious from Table I and Table II, the ratio of debt on both long-term and short-term is historically greater in Japan than in the U.S.A. American corporations have approximately 60 percent equity. The reason why the Japanese corporations borrow a greater amount of their capital funds is as follows:

1. Differences in financial markets: In the Japanese financial market, commercial paper and bonds are not so popular as they are in the United States. Therefore, short term funds must be borrowed from banks. Since little or no mineral resources are available in Japan, both the government administration and the private sector collectively or cooperatively secure the availablity of resources.
2. Strong industrial groups are formed in order to secure resources. Such groups include banks, trading firms, manufacturing firms, and distribution. Strong support is given by banks and trading firms to secure materials and resources for manufacturing activities, in addition to the support provided by MITI and the Ministry of Finance.
3. It is interesting to note that during late 1940s and 1950s, the United States made efforts to increase the foreign currency reserves of foreign nations which were needed to enhance their industries. Emphasis was made in Asia, and more particularly on Japan, which offered high stability. Capital funds in the form of foreign currency were offered to Japanese corporations, so that the Japanese corporations could purchase goods from the U.S. Since there was a need for capital funds on the part of Japanese corporations, they jumped on the offered funds. This was inherited by the Japanese banks as a business know-how. This is believed to be traditionally used by both banks and manufacturing corporations.
4. High interest rates in the United States almost prohibits the borrowing of money. In Table III comparison is made between the United States and Japan on borrowed funds.

TABLE III

[In percent]

	United States	Japan
Total debt	100.0	100.0
Short-term debt	19.4	59.4
From financial organizations	10.7	36.7
Commercial paper, others	4.6	0
Others	4.2	22.7
Long-term debt	80.6	40.6
From financial organizations	19.9	33.0
Others	60.7	7.6

In Table III the figures for the U.S. are as of September, 1980, and those for Japan are as of December, 1980.

As is clearly seen in Table III, U.S. corporations are trying to minimize their borrowing. Also characteristic in Table III is the higher percentage of long term debt from other means than from financial organizations in the U.S.; wheareas in Japan most of long debt comes from financial organizations. The short term debt is also more distributed in the United States; whereas it is concentrated in financial organizations in the case of Japan. Therefore, there is heavy dependance in Japan on banks and other financial organizations.

Lastly, analysis is made on the Japan Development Bank and the Export Bank. It is often misunderstood that all industry sectors are eligible for borrowing from the Japan Development Bank and the Export Bank. There are certain types of projects which are eligible for borrowing from the Japan Development Bank. They are urban development, pollution control, energy development, and future industry.

Up to 50 percent of the total expenditures may be obtained at an interest rate from 6 percent to 9.5 percent a year. The interest rate is defined by the type of projects and the term of borrowing. Export financing made by the Export Bank is also limited to transportation by ships and export of total plant equipment. Also eligible are technology export, buyers credit, energy resources and other resources, and overseas investment. Interest rates range from 6 percent to 8.8 percent depending on the type of financial arrangements and other factors; therefore, availability of low interest rates is limited to severely declining industry or small and medium size industrial firms. Major manufacturing firms are not eligible.

Senator JEPSEN. While you are still fresh, just a couple quick questions, Mr. Yawata.

Do you ever have any strikes? You do have a union organized within each company?

Mr. YAWATA. Yes; we have strikes, but I do not remember any strike in the past 5 years over an extended period of time. I think we had a couple of half-day strikes, but that is all in the past 5 years. The longest strike in NEC's history was in 1947 or 1948 for an extended period of time, but that was much before my time and I do not know how long it was. The longest one I remember since I joined the company lasted 48 hours.

Senator JEPSEN. And they are rare?

Mr. YAWATA. Very rare. I remember only one or two strikes that lasted that long.

Senator JEPSEN. When did the attitudes of encouraging individual initiative and creativity and individual participation to develop this group participation—has that always existed? Is that part of the culture? You gave the comparison where our industrial leadership worked more in the military commanding base versus yours as a conductor in an orchestra, and bringing everybody along in the group. Has it always been that way?

Mr. YAWATA. In large corportions I think it has been always that way since the 18th century, since any organization was formed. I think it is a historical characteristic of the Japanese.

Senator JEPSEN. All right. We have other questions. If we may proceed——

Representative RICHMOND. Please do.

Senator JEPSEN. We welcome Congressman Richmond, who has just joined us.

And now, Mr. Hague, you may proceed as you wish.

STATEMENT OF THOMAS M. HAGUE, DIRECTOR, ASIA BORG-WARNER CORP., CHICAGO, ILL.

Mr. HAGUE. Mr. Chairman, I am Thomas Hague, Asian director of the Borg-Warner Corp., and I want to state Mr. Yawata and his presentation and his corporation are certainly examples of dedication to quality and performance and the kind of product we have come to expect from Japan.

It was useful in giving specifics of Japanese management techniques, and my remarks will be more general, emphasizing the implications the Japanese success story has on us now as we study it and what I think our Congress may do to further America's productivity in foreign markets which means competitiveness.

Borg-Warner has developed in the last 25 years seven joint ventures, 50–50 or 49–50 percent equity share partnerships, with the Japanese, which has given us a great opportunity to study many of the management techniques which Mr. Yawata referred to. We have begun now, in the reverse flow of technology from Japan to our own country the first joint venture in this country with the Japanese producing a product design in Japan to be manufactured and sold in the American market, and we would anticipate this continuing.

But in addition to representing my own company, Borg-Warner Corp., I am here today on behalf of the Advisory Counsel of Japan-United States Economic Relations and the American Chamber of Commerce in Japan.

I lived for 10 years in Japan and in the last of those years I was president of the American Chamber of Commerce and our year was devoted very largely to the subject that we are discussing here today—what could we communicate to our home corporation in America of productivity technique and methods of management that we were learning in Japan which we thought might be utilized in our own country and in our own companies?

The Advisory Council on United States-Japan Economic Relations was established at the request of the two governments in 1971 to share the improvements we were finding in our corporations and our economies. The council is chaired by James F. Gray who's chairman and chief executive of the Borg-Warner Corp. The council operates under the administrative aegis of the U.S. Chamber of Commerce but it's autonomous, composed of 60 management leaders in American companies.

We met last week for our annual session, called the Businessmen's Conference. We met in New York and the subject of productivity is one of the subjects that we are paying increasingly close attention to because, as Mr. Yawata has suggested, Japanese are still interested in learning from us. America's productivity is still the largest in the world, but our rate of increase, as you state, is a good deal less than our competitive nations.

The American Chamber of Commerce in Japan has 1,100 members representing 500 business firms whereby America is doing its business in that thriving market of Japan. We have witnessed an extraordinary phenomenon since World War II and that is Japanese economic growth. Americans were first intrigued and pleased with it, but in the last decade really we have started getting more worried about it because it represents a challenge to what was American industrial supremacy in the world.

The September 1980 United States-Japan trade report in the House Ways and Means Subcommittee on Trade dramatically draws parallels between the Japanese economic challenge and the reknowned Sputnik of the Soviet Union in 1957. We all remember how the Sputnik shocked America into its space program. We now have to respond to a whole new challenge which has been given to us by Japan and it's no exaggeration to say that American industrial worldwide leadership is at stake.

One way to answer this question is to examine those factors in the Japanese experience which account for Japan's dynamic economic growth and it's gratifying to know that your committee is intent on that study. We're certainly not at a loss in America today for helpful comparative analyses. Publications are filled with tables, graphs and statements showing how Japan is doing better than we are. Japan is No. 1 on the most popular books that emerged recently, one of which Professor Bolard of Harvard was the author. He told us last week in New York that the volume sold 50,000 copies in America and 500,000 in Japan. We are inundated with articles and books explaining why the Japanese have been so successful.

Our chastising is self-chastising of our own industry, our habits, labor and government, or American inadequacies. It's probably helpful, but it certainly seems to me now that the time is for action and no sense of discouragement and no more self-flagellation in this comparison of United States-Japan structural analysis, and there are elements in the Japanese experience and phenomena that are applicable to American experience. My own company has learned that.

We have been practicing it steadily, once we had the humility and willingness to learn from those who had been our clients and our students for so many years. So without exaggerating those elements in the Japanese experience, I think we have to keep paying attention to them.

My brief remarks will be focused largely on what I think our Government could do to help America become more productive in the world market, more competitive.

On the basis of my experience in Japan, I can certainly say that their story is grounded in fundamental facts that cut across all the areas which we will be discussing today. The Japanese work well together. I honestly don't believe they work harder than Americans do, but they work extremely well together. There's a national consensus in Japan that business is the No. 1 priority.

In my early years in Japan and as a resident which began in 1968, I used to see annually the announcement that there was an export increase goal of 15 percent. It was announced by the prime minister. It became the national goal, well publicized, well visible, and deeply felt. Well, there has never been a year that Japan did not increase its exports far greater than 15 percent, but there was a dissemination of a national goal and a feeling that applied to each worker in Japan, and that is a consensus.

The consensus is operationalized by innovative techniques by the Japanese people who are industrious and dedicated. Just last week one of the top people in Skilo, Japan, said:

> Well, really it's a story that's been told over and over again, but they use the analogy of their nation as a ship, or their company as a ship, and when management is talking to labor they really say if we don't pull together we can't keep the ship afloat.

It's a graphic kind of thing. It may seem simplistic, but it has surely worked in Japan to feel individually and collectively a sense of responsibility to the organization closest to one and ultimately to the Nation. The Minister of the National Trade Industry regularly issues a program for national structuring or national industrial restructuring. The most recent paper that I've seen is his assumptions and policies for the eighties and their assumptions are arresting in that one of them is that the United States is in a state of relative decline, which is arguable, but it's interesting in that it is an assumption that Japan makes in creating her own role, in creating her own need for restructuring an industry, that American industry as she has come to know it so well is in a state of decline. The industrial restructuring takes place before our eyes, the emphasis moving from textiles to steel, automobiles, and into the whole new future of computers and ILS's, micro and data processing, in which Japan has really declared her intent to become a prime factor, if not the foremost factor, in this industry, and she's well in place to do so.

When we talk of motivating workers, the question arises as to how we in our country can accomplish what the Japanese so readily do through this marvelous sense of communication, this almost osmosis of thought that takes place—mind to mind, as Mr. Yawata says—and at the heart of it is a sense of national benefit and I think all of us have to look within ourselves as to how our efforts are bent in any way toward really doing something for our country, but my comments will be limited.

There is a prepared statement which is on its way from Japan. We asked the American Chamber of Commerce to give a much amplified statement which I think will be useful on this. It's on the way to us and will be sent to you as soon as it's received here in Washington.

And in stating, as I will do, what I feel our Congress could do, I must emphasize that I'm fully aware and I feel that most of us in American business today are fully aware that we have responsibilities which we have either ignored or been ignorant of or not mindful of in the past to strengthen all of those factors which will make us more competitive in the world market, which will improve our productivity, which would quit wasting our time and our national assets, and I feel that we in business are looking more deeply—far more deeply within our own system to see where change can come and probably where it cannot come because we are what we are in our country.

Now in the area of tax policy, I will deal very briefly with the tax reduction and tax incentives for savers and investors. Since productivity so largely depends on the tools that we give our workers, then I would ask that the Congress support immediate supply oriented tax relief with at least half of that relief paid in capital formation. I think support of the 10–5–3 proposal on depreciation is one that would suit most of us in the industrial area as the best reduction. There's no question that the wonderful incentive to save in Japan has created a capital resource readily available to industry through its financial institutions, through postal savings, and I don't have to remind anyone that the personal savings rate in the United States has fallen drastically in the last few years to a 30-year low, while that in Japan which is the subject of today's comparison continues at its remarkable rate, second in the world to Switzerland—sometimes I understand first in the world.

This has created organizations, companies like my own, with an unending problem of how to raise capital, how to modernize our factories, improve our procedures, our manufacturing processes, renovate factories which have not seen a new machine tool since before World War II. We have all seen figures on the average age of the industrial plant in Japan versus the average age of the industrial plant in the United States, and the heart of the problem is a very unfavorable comparison, but at the heart of the problem, of course, is the availability of capital to our companies.

Congress can support tax measures to reduce what I call the existing heavy bias against savings and investment. A desirable change would include lowering the maximum tax rate on individuals from 70 to 50 percent, reducing the tax on capital gains, providing more favorable treatment of retirement savings and dividend reinvestment bonds, and making permanent the interest on dividends exclusion.

I could speak most feelingly on the subject of taxation of the U.S. citizens working abroad and what has this to do with productivity? Well, I would seek to demonstrate that it has certainly a great deal to do with America's productivity in the world market.

In this connection, I want to pay tribute to the Joint Economic Committee's study mission which took place in January 1980. For the first time, I believe that the committee has sent a study mission overseas, and in this case to Asia. It was a most encouraging, reassuring thing to those of us who were at that time residents in Asia, that our Congress was getting close to an understanding of our problems and seeking to understand the problems of Americans across the world. It's a remarkable report and I hope it will be followed by many others which will result from overseas study on the part of this subcommittee because America's role in the world market is one which we have treated too lightly.

Healthy export activity and operations of foreign subsidiaries of American companies benefit our economy, it goes without saying. It's proven it produces jobs. It doesn't transfer jobs abroad in the net. It promotes a positive trade balance and it generates tax revenue.

America's current account in the past years has been kept from disaster from the fee of dividends and other earnings that our enterprising investments abroad has given us. American firms should not be put at a substantial competitive disadvantage we now suffer with foreign firms through unfavorable tax laws. These laws have to recognize that American citizens working abroad are as essential to their employer as is American capital, but these American employees often face increased costs due to employment abroad and I'm a living case study of this.

I was replaced in my organization by an Australian whose tax burden to my company was less than half that which my burden came to be, and I feel very deeply that American enterprise abroad must be represented by Americans. It pays no discredit to the capability of other nationals—the British, the Europeans and the Australian that American enterprise has turned to. It's simply a question of tax relief because it's too expensive to keep us American citizens abroad.

Now what can the Congress do about this? It can support action on tax laws on foreign earned income that would encourage Americans to work abroad. I'm really distressed that the problem there is in getting young Americans to want to work abroad. There was a rush following World War II of Americans who wanted to have overseas experience, but today, other than the backpacking and hitchhiking through Europe and a few more adventurous ones who want to sit in the Himalayas and contemplate, it's very troublesome, like my own company, to get young Americans who want to come into an international program and face long careers of working abroad.

The Congress cannot change the national mind in that respect, but they can certainly increase the incentive to Americans to move abroad by removing the tax burdens which began to distress us so in the 1950's where we discovered that the most necessary of supplemental income for the education of our children, for the moving of our furniture and personal effects, and things like that abroad—all of those charges began being attributed to us as extra income and it became taxed. That just turned us all off on the other side.

American citizens and American firms abroad are essential agents for promoting American exports and to enable American business to compete in world markets on a comparable basis with foreign firms. Congress just must support that legislation which would exclude from taxation a sufficient amount of income to cover the earnings of the great majority of Americans that are working abroad. America is, I think, the only major industrial power that does tax its citizens wherever they are in the world on the basis of citizenship. Deductions should be provided for excess housing costs, for all the other benefits which support the American who has declared his willingness to have a career representing American companies abroad.

Now on the subject of capital formation, there will be a great deal more in the prepared statement which will be distributed, but one of the main reasons productivity growth has been declining in this country is the lack of capital. Present depreciation loss has been a major factor contributing to that because it's tied to the concept of a historic use of life to assets and the current depreciation system often doesn't allow a business to recover the cost of an asset before it has to be replaced. In this time of inflation the current system results in depreciation. For the small business, many of whom are struggling to get into an export program, the present depreciation system produces even harsher results. They are not able to take advantage of accelerated depreciation provisions of the current law due to the expense of accounting and reporting laws involved, and I ask what can the Congress do?

Well, I prefer the depreciation provisions and I have asked you to support the 10–5–3 approach as currently the best approach we have seen.

REGULATORY POLICY

The letter inviting us to testify referred specifically to comments on that. The number of American Government regulatory demands has grown. The burden has become almost unmanageable. Regulations are often promulgated without adequate consideration of the cost, without adequate consideration of their influence, their adverse influence on our export potential, expansionary potential overseas. All of these have proven more costly than they have—well, many of them have proven more costly than they seem beneficial to us.

The number of people in our headquarters here in this country dedicated to filling out forms and maintaining the tonnage of response to regulatory demands is almost beyond acceptance, but where it disturbs us who have lived and worked overseas and have joint investments, in our case in Japan, is, it imposes on those enterprises in which we own a greater than 10 percent share the same regulatory obligation, asking our Japanese partners in our case to provide funding for the administrative staff that's necessary to fill out forms that are of no interest to them because their nation doesn't require them.

So we ask the Congress to support requiring an agency to consider the impact a proposed rule would have on our economy as well as on the public safety and health.

On exports, Congress could also support selection of the most cost effective regulatory alternatives by the agencies. I won't deal with environmental standards beyond saying that I'm impressed with the businesslike way Japan has handled her problem of cleaning her atmosphere. When I first lived in Tokyo we seldom saw Mount Fugi from our apartment windows, but I was told the last year of my residence there that I could see Mount Fugi better than 75 days a year, and I think that's true. That means that the air has been cleared. They have done it in a most methodical way. Business accepted the challenge and responsibility and the expense and were given every incentive to do so, and I would only say that I think our Congress should support the elimination of confusions and delays of present regulation of clean water and clean air and the requirements of the acts provided for those given to us. It's gratifying to note that attention is being given to these.

Therefore, in the question of our productivity as it relates, in my case, to concern for America overseas, I believe encouraging our young people to come into careers that send them overseas, that provide the incentives needed to keep them there. I believe the sense of national benefit can best be voiced in our Congress and by our administration to try to get our citizens to begin thinking of what's good for our country and what's needed for our country and its competition in the world, and that we then look, we corporations, more deeply within our corporate structures to find out if we are truly turning out the kind of men and the kind of systems that will serve us to be increasingly productive, asking labor to do its share, and I've asked the Congress in these brief remarks for their help.

Then the creation of a forum between management and labor and with government in which these things can be discussed as readily in our society as they are in Japan, in the case of today's hearings. These things are not outside of the nature of Americans to accept and to use. We are not so different as human beings. The systems that our young country has developed has not encouraged interdependence, but we are increasingly mindful of weaknesses in the system and strengths in other systems, and I think there's a willingness to learn. These subcommittee hearings are typical.

And I, too, will be prepared to answer questions and I thank you for the opportunity of being with you.

Senator **JEPSEN**. Thank you, Mr. Hague, for a thoughtful presentation. Do we have copies of your remarks?

Mr. **HAGUE**. Yes.

[The prepared statement of Mr. Hague, together with attachments, was subsequently supplied for the record:]

PREPARED STATEMENT OF THOMAS M. HAGUE

The U.S. Government's Role in Strengthening American International Competitiveness and the American Domestic Economy

Mr. Chairman, I am Thomas Hague, Asian Director of the Borg-Warner Corporation. I want to congratulate Mr. Keiske Yawata, president, NEC North America Inc., for his excellent presentation, and to state that he and his corporation are examples of the dedication to quality and performance that we have come to expect from Japan.

I am here, in part, as a representative of the Borg-Warner Corporation, which has in the last 25 years developed seven joint ventures, that is, 50/50 or 49/51 percent equity share partnerships with the Japanese. This has provided us with an opportunity to study many of the management techniques to which Mr. Yawata referred. In the reverse flow of technology from Japan to the United States, we have undertaken the first joint venture in this country with the Japanese. We will produce a product designed in Japan to be manufactured and sold in the American market. We anticipate development will extend to other such avenues of cooperation.

In addition to representing the Borg-Warner Corp., I am here today on behalf of both the Advisory Counsel on Japan-U.S. Economic Relations and the American Chamber of Commerce in Japan.

The Advisory Council on Japan-U.S. Economic Relations, was established at the request of the governments of Japan and the United States. It is chaired by James F. Bere, Chairman and Chief Executive Officer of Borg-Warner Corporation, and is currently composed of sixty top management leaders of companies engaged in a wide variety of business activities involving the United States and Japan. The Council operates under the administrative aegis of the Chamber of Commerce of the United States, but is autonomous in matters of policy. Since its establishment in 1971, the Council has been both active and influential in pursuing its objectives of advising the U.S. government on the means of improving economic interchange and enhancing overall communication between the two countries.

The Council met last week in New York for its 18th annual session. Discussions on productivity highlighted the series of talks. It was noted that when international comparisons of levels of productivity are made, the United States still occupies first place. However, our rate of increase over more than a decade has been less than that experienced by our major competitors, particularly the Japanese.

The American Chamber of Commerce in Japan has 1,100 members representing 500 U.S. business firms doing business in that country. The fundamental goal of that Chamber is to further the cause of American business in and with Japan through the activities of 22 standing committees. I lived for ten years in Japan, during which time I served as president of the American Chamber of Commerce.

My tenure as president was devoted largely to the subject that we are discussing today—what could we communicate to our home corporations in the United States about Japanese productivity techniques and methods of management?

Having described briefly those organizations I am representing today, let me now turn to a general discussion of the implications of the Japanese success story for the United States. The main focus of my remarks is on what I feel Congress should do to further America's international competitiveness and strengthen our domestic economy.

We have witnessed an extraordinary phenomenon since the Second World War—Japan's unprecedented economic growth. It is a challenge to America's ability to compete in the international economic arena.

Japan's Industrial Structure Council, which is an advisory organ to the Ministry of International Trade and Industry, regularly issues reports for national industrial restructuring. It is interesting and relevant to note that the latest report, entitled "The Vision of MITI Policies In The 1980's," assumes that American industry, as Japan has come to know it so well, is in a state of decline.

The September 1980 U.S./Japan Trade Report of the House Ways and Means Subcommittee on Trade drew parallels between the Japanese economic challenge and the renowned "Sputnik" of the Soviet Union, in the sense that, "like the Sputnik, we should be shocked into responding to the challenge." We all remember how the Sputnik shocked America into its space program. We now must respond to a new challenge to examine those factors in the Japanese experience which account for that country's dynamic economic growth. Our Advisory Council and our American Chamber of Commerce in Japan are intent on meeting that challenge.

We're certainly not at a loss in America for helpful comparative analyses of the Japanese and American economies. Publications are filled with tables, graphs and statements demonstrating Japan's strong position in the world marketplace. There are elements in the Japanese experience and phenomena that are applicable to American corporations, as my own corporation, Borg-Warner, has learned.

We have been making progress. We have the humility and willingness to learn from those who had been our clients and our students for so many years. So without exaggerating those elements in the Japanese experience, I think we must pay attention to them.

Based on experience, I can say that Japan's success story is grounded in fundamental facts that cut across all the areas being discussed today. The Japanese work well together, though I do not believe they work harder than their American counterparts. There's a national consensus in Japan that business is the number one priority. I observed Japan's Prime Minister announce in 1968 a determination to increase exports by 15 percent annually. This became the national goal—well publicized, well visible and deeply felt. Since that time, Japanese exports have never increased by less than 15 percent.

The consensus works well because of the innovative techniques of the Japanese people, who are truly industrious and dedicated. Although it is a story that's been told over and over again, my Japanese friends often use the analogy of their nation or company as a ship. When management is talking to labor, it emphasizes the necessity of pulling together to keep the ship afloat. This analogy may seem simplistic, but it has surely worked in Japan to create, individually and collectively, a sense of responsibility to the organization and ultimately to the nation.

Industrial restructuring in Japan takes place before our eyes, the emphasis moving from textiles to steel, from automobiles to computers and micro and data processing. Japan has declared its intent to become a prime trader in these industries, and is well equipped to do so.

Concerning the motivation of workers, the question arises as to how we in our country can accomplish what the Japanese so readily do through this marvelous sense of communication. The "mind to mind," as Mr. Yawata calls it, is a sense of national well-being. I think all of us have to look within ourselves, and mold our efforts toward doing something for our country along these lines.

We in the American business community today are fully aware of our responsibilities and of strategies that will make us more competitive in the world market by improving productivity and wisely using our national assets. In this context, I want to pay tribute to the Joint Economic Committee's study mission of January 1980. It was the first time the Committee sent a study mission to Asia, and we found it encouraging and reassuring as residents in Asia that our Congress was seeking an understanding of the problems of U.S. corporations doing business abroad.

This reinforces my conviction that the entire U.S. government has fundamental responsibilities to make the U.S. more competitive in world markets. And this on two fronts—in terms of regulations and laws that inhibit U.S. exports, and in terms of strengthening our domestic economy. It is to a discussion of these points that I would now like to address my remarks.

STRENGTHENING AMERICAN COMPETITIVENESS ABROAD

Robert Hormats, Assistant Secretary for Economic and Business Affairs in the State Department, captured the essence of the problem of enhancing U.S. competitiveness and its solution in a May 19, 1981 New York speech before the International Insurance Advisory Council:

"For too long we have failed to recognize the cumulative adverse impact on U.S. exports of inhibiting U.S. regulations and laws. The trend will be reversed. In this connection, the Administration supports the export trading company bill now before the Congress, as well as legislative action to modify the Foreign Corrupt Practices Act and to reduce the income tax burden on Americans working abroad. We need also to use the resources of State, Commerce, and Agriculture Departments more effectively to promote exports. I can assure you that the Department of State and U.S. ambassadors abroad stand ready to vigorously support U.S. exporters."

A program to revitalize the U.S. economy must include actions designed to strengthen our competitive position abroad. While an improved competitive position cannot be achieved without sound domestic policies that will encourage capital formation and raise our productivity at home, there are also changes in U.S. foreign economic policy which are urgently needed. The magnitude of the challenge which America faces in the international marketplace is underscored by the $119 billion merchandise trade deficit incurred over the past three years.

The following four action items cover specific measures which American businessmen abroad believe are needed to realize the full strength of our economy in international markets:

Improve tax treatment of Americans abroad

In order to achieve equality with their foreign competitors, and to strengthen the "pull effect" on U.S. exports stemming from their presence abroad, American business abroad strongly supports ending the additional burden imposed by the U.S. tax levied on overseas Americans. Extensive evidence is now available to show that American tax laws are placing us at a serious competitive disadvantage.

The Foreign Earned Income Act of 1978 is totally inadequate because its provisions: (1) seriously reduced American competitiveness in overseas markets; (2) do not contribute to the growth of the U.S. economy; and (3) impose enormous administrative burdens.

Ideally, Americans who have established the center of their economic activity abroad should be exempt from U.S. taxation on all their foreign earned income and pension income attributed to foreign sources. Allow me to develop this point for a moment. I was replaced in my organization in Japan by an Australian whose tax burden to my company was less than half that which my burden came to be. I feel very deeply that American enterprise abroad must be represented by Americans, but tax relief was granted my company by hiring a foreign national.

Healthy export activity and operations of foreign subsidiaries of American companies benefit the U.S. economy, produce jobs, promote a positive trade balance, and generate tax revenue. U.S. firms should not be put at substantial competitive disadvantage with foreign firms through unfavorable tax laws. In addition, tax laws should recognize that while U.S. citizens working abroad are as essential to their employers as is American capital, they often face increased costs due to employment abroad.

Congress can support enactment of tax laws on foreign earned income that would encourage, rather than discourage, Americans to work abroad. U.S. citizens and firms abroad are essential agents for promoting U.S. exports. To enable American business to compete in world markets on a comparable basis with foreign firms, Congress should support legislation that would exclude from tax a sufficient amount of income to cover the earnings of the great majority of Americans working abroad. To ensure simplicity and equitable treatment, the legislation should not be restricted to individuals in selected industries, occupations, or countries. Deductions should be provided for excess housing costs and, under appropriate circumstances, for employer-furnished meals and lodging.

Modify current law regulating U.S. oversea business practices

The Foreign Corrupt Practices Act (FCPA), signed into law on December 19, 1977, immediately gave rise to interpretive problems for companies engaged in overseas business transactions. Business and government officials agree that the Act is difficult to decipher and to implement. As a result of its ambiguities, U.S. companies are losing overseas business and they cannot be sure of the legality of their behavior in many instances. Information compiled by the U.S. Chamber of Commerce has confirmed these unintended consequences of the FCPA.

With the prospects in the foreseeable future for an international accord on accepted business practices unlikely, American business abroad urges rapid action to eliminate many of the ambiguities in the present FCPA. Action along the lines of the Chafee/Rinaldo bills (S. 708/H.R. 2530) is needed which would make the following changes in the FCPA: (a) impose liability only if U.S. persons "pay, give, offer, or promise, directly or indirectly;" (b) specify that the FCPA is the exclusive statute under U.S. law for prosecuting overseas bribery; (c) add materiality and scienter requirements to the accounting provisions; (d) repeal the Security and Exchange Commission's jurisdiction over the bribery provisions, (e) exclude conduct considered lawful by the country in which the payment occurs; and (f) provide a clearer exemption for expediting or facilitating payments.

Promote exporting through trading companies

U.S. trade performance could be significantly improved through legislation designed to encourage exports by small- and medium-sized firms. Toward this end, American business abroad supports legislation along the lines of the Export Trading Company Act of 1981 (S. 734/H.R. 1648). This bill already received strong endorsement by the Reagan Administration at Senate hearings in February and was passed 93-0 by the Senate on April 8, 1981.

The trading company bill provides a significant stimulus to exports, especially to small and medium-sized firms, through the following measures: (1) enabling banks to become equity partners in trading corporations up to and including controlling interests; (2) clarifying antitrust laws with respect to export trading companies and associations through an interagency anti-trust certification procedure administered by the Commerce Department. The procedure is designed to assure that there would be minimal risk of antitrust prosecution after certification; (3) bringing service industries within the provisions of the antitrust clarifications.

Making financing of U.S. exports internationally competitive

American business abroad stresses the need for the Administration and the Congress to take vigorous action to meet unfair credit competition abroad. In a world where comparable products, services and technologies are widely available, terms of financing are often a decisive factor in securing an export market.

The only meaningful solution to this country's uncompetitive export credit situation is the conclusion of an international agreement which allows credit rates to go to commercial levels. American business abroad urges the Administration to seek rapid international agreement on export credits through the application of all available bargaining pressures. At the same time, both Congress and the Executive Branch need to recognize the importance of an adequate Eximbank program, including a strengthened guarantee program, combined with longer terms.

Three additional areas need attention:

The "antitrust" laws should be comprehensively reviewed by a Presidentially appointed commission. Extraterritorial application should be limited to cases where there is a substantial adverse effect on the U.S. consumer.

The "antiboycott" provisions of the Tax Reform Act of 1976 should be repealed, and the Export Administration Act of 1979 and related regulations amended and clarified.

"Controls" on exports for national security or foreign policy reasons should be carefully reviewed to be sure that the presumed benefits are not more than offset by the long-term damage done to the trading capability of the United States.

STRENGTHENING THE U.S. DOMESTIC ECONOMY

What is the relationship between U.S. trade and the U.S. domestic economy vis-a-vis Japan's economic success story? Again, to quote Assistant Secretary Hormats in his May, New York speech: "Underlying a successful U.S. trade effort must be a successful domestic economic policy. Our efforts to continue the progress made so far in developing a more orderly trading system and our efforts to respond to new competitive challenges will ultimately fail unless they are backed by a vigorous U.S. economy. We often are critical of Japan's vigorous export efforts. And it is true that Japan is frequently insensitive to the impact of their exports on others and that it has not fulfilled adequately its responsibility to open its economy to others. But we should never lose sight of the fact that Japan's rates of savings and investment, its productivity increases and its technical innovations, are, more than any other factors, the reasons for its success. Unless the United States can reverse its weakening productivity, savings, investment, and research and development picture, even the most aggressive export promotion effort will be fruitless. And the self-defeating notion will take hold that the United States cannot compete and should, instead, shelter itself from foreign competition. Improved growth, investment, and productivity performance will, on the other hand, facilitate our ability to adjust to and compete in dynamic international markets."

I will briefly touch on four areas: tax reduction, tax incentives for capital formation and for savers and investors and regulatory policy. I have already covered taxation of U.S. citizens working abroad.

Tax reduction

Since the last major reduction enacted in 1978, federal tax revenues have risen more than 50 percent, from $402 billion in fiscal 1978 to an estimated $607 billion in fiscal 1981. Double-digit inflation has reduced the real value of depreciation allowances on business investment, has pushed almost all individual taxpayers into higher brackets, and has discouraged individual savings and work effort.

What can Congress do? It can support immediate, supply-oriented tax relief as proposed by the Administration and introduced by Congressmen Conable and Hance on June 9 in H.R. 3849. Of equal importance are immediate steps to reduce federal spending and the regulatory burden. Replacement of the outmoded "useful life" depreciation system with a fair, effective, and simple capital cost recovery system should be the centerpiece of business tax relief. Congress can also support the Administration's accelerated depreciation proposal as the best approach. Individual tax reductions should be oriented toward encouraging more savings, investment, and work effort, through across-the-board reductions in rates, and reducing the maximum rate on all income from 70 percent to 50 percent, reducing capital gains taxes, and adopting other provisions to promote savings as proposed in H.R. 3849. These measures will lead to greater supplies of labor and capital, hence higher output, and will be noninflationary if accompanied by strong fiscal and monetary restraint.

Tax incentives for savers and investors

The personal savings rate in the United States has fallen drastically in the last few years to a 30-year low. Many observers contend that this drop has contributed to our weak productivity growth, which in turn has lowered the real income of American workers and reduced our competitiveness in world trade.

What can Congress do? It can support tax measures to reduce the existing heavy bias against savings and investment. Desirable changes include lowering the maximum tax rate on individuals from 70 to 50 percent, the current maximum on earned income; reducing the tax on capital gains; providing more favorable treatment of retirement savings, other tax-deferred savings accounts and dividend reinvestment plans; and making permanent the $200/$400 interest and dividend exclusion scheduled to expire in 1982.

Capital formation

One of the main reasons that productivity growth has been declining in this country is a lack of capital. The present depreciation laws have been a major factor contributing to this shortage of capital. Becuase it is tied to the concept of the historic useful lives of assets, the current depreciation system often does not allow a business to recover the costs of an asset before it must be replaced. Moreover, in times of inflation the current system results in underdepreciation, and thus taxation of "phantom" corporate profits. For small businesses, the present depreciation system produces even harsher results, because they are not able to take advantage of the accelerated depreciation provisions of current law due to the expensive accounting and reporting requirements involved.

What can Congress do? It can support replacing the present outmoded depreciation provisions with an improved capital cost recovery system. Congress can support the Administration's accelerated depreciation proposal as the best approach.

Regulatory policy

As the number of government regulations has grown, so has the burden on business. Regulations are often promulgated without adequate consideration of the costs. Even when a regulation is deemed important, the remedy chosen is often more costly than necessary. We should require agencies (1) to show the need for each proposed regulation which would have an economic impact of $100 or more and (2) to state possible alternatives to each proposed regulation. This would prevent promulgation of many unnecessary and costly regulations.

What can Congress do? It can support requiring an agency to consider the impact a proposed rule would have on the economy, as well as on public safety and health. Congress can also support selection of most cost-effective regulatory alternatives by agencies.

CONCLUSION

In my remarks, I have emphasized what our Congress might do to make the U.S. more competitive and to strengthen the U.S. domestic economy. I am attaching as background an extensive telex I received from the American Chamber of Commerce in Japan. This telex concentrates on tax policy and capital formation and delineates in some detail how the Japanese have furthered their economic growth. I am also attaching a detailed memorandum on the capital cost recovery aspect of the Japanese tax system prepared on May 8, 1981, by Price Waterhouse, Tokyo.

I appear here today with the conviction that the sense of national well-being in the U.S. can best be instilled through a cooperative effort with Congress, the Administration, business and labor to define what is needed for our country and its competitiveness in the world. And that we as corporations look more deeply within our corporate structures to find out if we are truly turning out the kind of people and the kind of systems that will be increasingly productive, while asking labor to do its share.

There needs to be the creation of a forum between management and labor and government in which these things can be discussed as readily in our society as they are in Japan. These improvements are not outside the nature of Americans to accept and to employ. We are not so different as human beings. The systems that our young country has developed have not encouraged interdependence, but if we are increasingly mindful of weaknesses in the system and strengths in other systems, I think there's a possibility to learn. These Committee hearings are typical.

And I, too, will be prepared to answer questions. I thank you for the opportunity of being with you.

Attachments.

Telex to T. M. Hague, Director, Asia Borg-Warner.
From M. Zimmerman, President, American Chamber of Commerce in Japan.

The subject of availability of capital for business expansion and business startup as it relates to a comparison of the United States and Japan is multi-faceted in scope.

As you already know, the United States (1) has not been generally pro business; (2) has been passive on investments in foreign countries such as Japan; (3) has been negative in establishment of a central bureau for international trade such as MITI (Ministry of International Trade and Industry) in Japan; and (4) has been aggressive on regulation of business.

Meanwhile, Japan has been pro business: (1) It meets with business to promote exports and investments in foreign countries; (2) MITI has been extremely successful for government and business; (3) Etc.

As late as January 1980 Senator Bentsen and the Joint Economic Committee of U.S. Congress were still unaware of the problems of American business overseas. They made a tour through the Pacific and returned to the United States to start the campaign to:

(1) Reduce the cost of overseas business by cutting down the cost of expatriates by elimination, in part the tax on expatriates;
(2) Reducing the impact of antimonopoly law outside U.S.A.; and
(3) Reviewing the problem of the Foreign Corrupt Practices Act, etc.

Now we see the effect of this in the recent program to save the auto industry.

Japan has one of the highest known saving ratios in the world today. This is very important because:

(1) The large amount of savings in banks and saving institutions makes money available for investment;

(2) The Japanese government's huge deficit is financed by banks purchasing huge amounts of government bonds at relatively low interest rates;

(3) Cooperation of government, business, and labor has meant lower interest rates, and lower inflation;

(4) Company unions are cooperative in keeping down the wage increases. We hear today that this year's increase will be at about this year's inflation rate: 7.8 percent.

Why do Japanese people save so much? One reason is the incentives given to individuals to save. Interest on savings deposits with any financial institution up to 3 million yen ($14,350) is exempt from income tax for each individual. In addition to this, interest on savings deposits with the post office up to 3 million yen is also exempt from income tax. An individual may earn interest tax free on savings of up to 5 million yen ($23,925) made through his employer. Interest on approximately $52,600 is therefore tax free for each individual.

When an employer lends money to an employee at a very low interest rate, or subsidizes a part of the interest paid by employees to financial institutions, the economic benefit given to the employee is not taxable for the employee's income tax purposes provided that the employee's borrowings are made for acquiring a house for his residence and the employee pay at least three percent interest.

When an employer sells its land and/or house to an employee at a very low price, the economic benefit given to the employee is not taxable for the employee's in come tax purposes, if the employee pays at least 50 percent of the market price of the property and the employee uses it for his residence.

When an employer lends a house to an employee, the economic benefit given to the employee is not taxable for the employee's income tax purposes if the employee pays to its employer at least the amount calculated using the special formula prescribed by the tax laws. The amount so calculated is normally about five percent of the fair rental of the house.

An enormous area for capital development is the act that generally there is no tax on capital gains.

Individual capital gain is taxed in rare cases, such as if an individual is subject to Japanese income tax on income derived from sale of shares only if either of the following threee conditions are met:

(A) Sale of 200,000 or more shares (yen 50 per value) in 50 or more transactions during a taxable year.

(B) Sale of 200,000 or more shares of a single company during a taxable year.

(C) Sale of major interest in controlled corporation—The sale of major interest in controlled corporation occurs if all of the following conditions are met:

(1) one individual shareholder owns or did own within the most recent three years (including the current year) 30 percent or more of the total shares of the company;

(2) the shareholder has transferred within the most recent three years (including the current year) 15 percent or more of the total shares of the company; and

(3) the shareholder has transferred five percent or more of the total shares of the company in the current year. Shares held by the individual's wife, children, parents, employees, and any other persons in a special relationship with the individual are attributed to the taxpayer to determine the necessary ownership and sale percentages. We have been involved in planning to reduce the tax impact on sales of family held companies. By tax planning, sales can be made over several years and no tax need be paid.

A special deduction of 30 million yen is allowed in computing taxable capital gains on the following sales of the taxpayer's residence or residential lot.

(A) Sale of land and building used as a taxpayer's present residence.

(B) Sale of land and building not currently used by the taxpayer. In the case that a sale is made during the period from the day of termination of his own residential use to the end of the third calendar year following a year of the termination, the taxpayer has to clearly state his intention to take this special deduction on his income tax return for the taxable year in which above sales occur. If this special deduction is claimed in a taxable year, no such deduction can be claimed in the following two taxable years.

Now let's move over to large money areas. The Japanese government has made substantial grants to business. For example:

(1) Grant to computer development laboratories—Computer development laboratories have been organized as a government body to develop VLSI by the participation of five large electric companies (such as Hitachi). The aggregate of the grant from 1976 through 1979 was approximately 28 billion yen. The grant was given based on the government policy regarding the national production of computer manufacturing.

(2) Grant from the coal mining industry regionalization corporation.

(3) Grant from the employment production projects corporation (EPPC) for employment of ex-coal mining workers.

(4) Grant from EPPC for the construction of a work shop or facilities, etc. in connection with the employment of handicapped persons.

(5) Grant for the semiconductor industry.

There are basically two preferential financing means available to fund domestic research activities.

(1) By Japan Development Bank—Types of research activities qualified to obtain the preferential financing and interest rates.

(a) Construction funds to build new facilities used to commercialize new technology developed in Japan (8.0 percent per annum).

(b) funds necessary for pilot production of new domestically developed machinery and equipment for market testing (8.5 percent per annum).

(c) funds to purchase heavy machinery built for the first time in the world using new technology and blue prints developed in Japan (8.0 percent per annum).

Financing conditions

Amount: 50 to 80 percent of the total building cost.

Repayment: Within 15 years with the grace period of the first two or three years.

Total funds available: 44,000,000,000 yen for the period from April 1, 1981, to March 31, 1982.

Recommendation required: By the Ministry of Commerce and Industry.

(2) Public fund for small- and medium-sized industries—The preferential financing from this source is available to those companies with capital of not exceeding 100,000,000 yen or with the number of employees not exceeding 200, and the fund can be used only for the purposes as described in (1)(a) or (1)(b) above.

Financing conditions

Interest rate: From 8.0 to 8.5 percent per annum.

Repayment period: Within 10 years with the grace period of first one or two years.

Total funds available: 270,000,000 yen for the period from April 1, 1981.

Recommendation required: By the bureau of small businesses.

ACCELERATED WRITEOFFS

(1) Increased initial depreciation is allowed for the following assets in the amount of a prescribed percentage of the acquisition cost as follows:

(a) 27 percent initial depreciation—Qualified plant and equipment used for prevention of air and sea pollution, sewage disposal, smoke disposal, and prevention of noise.

(b) 20 percent initial depreciation: qualified industrial water supply equipment; qualified plant or equipment used for relief of air pollution, smoke disposal, etc; qualified plant or equipment used for regeneration of dregs; qualified plant or equipment which is designed to improve an effective utilization of energy.

(c) 15 percent initial depreciation: qualified steel vessel owned by shipping companies.

(d) 13 percent initial depreciation: qualified newly developed high quality plant or equipment with which the electronic computer is combined; qualified aircraft owned by airlines companies.

(2) In addition to ordinary depreciation based on statutory useful life, the following accelerated depreciation is allowed if assets come within the following categories:

(a) 75 percent or 50 percent of ordinary depreciation: for newly constructed housing for rent (the percentage varies with the year of construction and building structure).

(b) 40 percent or 32 percent or ordinary depreciation: for newly constructed storage tanks for crude oil;

(c) 32 percent of ordinary depreciation: for machinery, equipment, ships, docks, factory buildings and warehouses owned by a small- or medium-sized enterprise engaged in the specified type of business which is a member of a commercial or industrial association having an approved plan to modernize the member's facilities.

INVESTMENT TAX CREDIT FOR INDUSTRIAL RECONVERSION EQUIPMENT

When a corporation acquires, produces or constructs the following plant and equipment during the period from April 1, 1979, to March 31, 1981, and uses them for his business within one year from the day of acquisition, production or construction, 10 percent of acquisition, production or construction cost or 20 percent of corporation income tax, whichever is smaller, may be credited against the corporation income tax, as the substitution of additional depreciation.

(1) Corporation in specific recession industry:

(a) Qualified plant and equipment used for prevention of air and sea pollution, sewage disposal, smoke disposal, and prevention of noise;

(b) Qualified plant or equipment to which the special equipments to prevent air pollution, smoke disposal, etc., are attached;

(c) Qualified plant or equipment used for regeneration of dregs;

(d) Qualified plant or equipment which is designed to improve an effective utilization of energy;

(e) Qualified plant and equipment used for compound of important materials.

(2) Medium or small sized corporations doing in special recession industry and recognized by authority:

(a) Qualified plant and equipment mentioned in (a) above;

(b) Plant, equipment, tools, etc. which is acquisitioned 800,000 yen or more per unit.

Business can also have help from the government if it has suffered operating losses and it wants to be able to use up the losses by accounting changes. For example, a loss about to expire can be effectively deferred by increasing current income by:

(1) Rearrangement of depreciation to shift the deduction to the end of the useful life. They do not have the allowed or allowable system.

(2) Certain costs can be capitalized to be written off at a later date when the company is profitable.

(3) Certain reserves can be restored to income and reestablished at a later date when the company is profitable.

We have been involved in studies to make suggestions to management in this area.

(1) Tax holidays—one.

(2) Flow through losses to individual investors—The partnership form of business is not well known. They do use to a limited extent a silent partnership but should be disregarded because of limited use.

RESEARCH SUBSIDIES

Governmental capital subsidies to the following research areas:

(A) General industrial technology and other technologies related to living;

(B) System technology relating to housing industry;

(C) Research activities which aim to break through the present technological limits;

(D) Research activities relating to the technology of environmental preservation and public safety; and

(E) Other research activities relating to the improvement of industrial environment.

The subsidies must be used for the following purposes:

(A) Constructing building and facilities;

(B) Acquisition of machinery and equipment;

(C) Tools and furniture;

(D) Materials and components; and

(E) Direct labor cost (not available for some types of research activities).

These subsidies usually cover one half of the above costs and are around 10 million yen to couple of 100 million yen. These subsidies have been given to about 60 companies in a year. These subisdies are not taxable to those receiving them to the extent that they are non-refundable to the government. The subsidies must be refunded to the govenment in one of the following two ways (the refund method is usually specified for each research area):

(1) Revenue repayment—Repayment of a certain percentage of revenue, up to the amount of subsidies received, arising from the qualified research efforts for five or six years after the research is completed.

(2) Success repayment—Repayment annually or semiannually of part of all of the subsidies received, depending on the degree of success within five years.

The amount of grants/subsidies and the name of company which received grants/subsidies are not disclosed by the government from the view-point of maintaining secrets.

SPECIAL TAX CREDIT FOR INCREASE IN RESEARCH AND DEVELOPMENT COSTS

A special tax credit is allowed as an incentive to induce businesses to spend more money on research and development. Effective for accounting periods beginning on or after June 1, 1967, and ending March 31, 1982, a corporation that increases its expenditure on research and development projects compared with the largest expenditure in a base period is allowed a tax credit equal to 20 percent of the excess expenditure. The credit cannot exceed 10 percent of the corporation tax before tax credits. This tax credit is granted to domestic and foreign corporations operating in Japan. Qualified research expenditures are those which have been expensed in the current year and those for research activities relating to the manufacture of product and the improvement, innovation, and discovery of technology.

ADDITIONAL POINTS

(A) Accelerated write off legislation is periodically targeted to apply to industries the Japanese currently want to encourage. For example, from 1950-70 the automotive industry was the recipient of such special tax treatment.

(B) Development of overseas markets encouraged by tax deferral on easier basis than DISC, e.g., Japanese companies can write off a certain percentage of earnings from export sales.

JAPANESE REGULATORY POLICY

Japanese regulations are developed in conjunction with industry, cast in broad terms, and applied flexibility to minimize impact on business. For example, MHW is currently developing good lab practice standards for Japanese pharmaceutical industry which will not be promulgated until consensus is reached with Japanese pharmaceutical manufacturers association. Existing pharmaceutical affairs laws implemented in close consultation with industry and academic advisory council.

INFANT INDUSTRY APPROACH

Japanese government has followed "infant industry" policy and practice. It has opened the Japanese market only after domestic industry capable of meeting international competition. For example, imports of computer hardware were strictly limited by import quotas until 1975. Licenses granted only on proof of no domestic equivalent. In software, Japanese manufacturers are lagging behind. To help overcome this deficiency, MOF announced recently an income tax scheme whereby new software can be registered with MITI and any income derived from sale of use of software will be exempt from tax.

Memorandum: Japanese Tax System, Capital Cost Recovery

A. DEPRECIATION AND AMORTIZATION

With respect to (1) tangible fixed assets such as buildings, furniture and fixtures, automobiles and manufacturing plant (excluding land or inventory), (2) intangible fixed assets such as patents, goodwill, trademark and mining rights, (3) deferred assets such as research and development expenses and initial expenses, or (4) other properties such as cattle and fruit-trees, which are used in a trade or business, depreciation or amortization is allowed on the basis of acquisition cost, salvage value (10 percent of the acquisition cost in the case of tangible assets and nil in the case of intangible assets) and the statutory useful lives or the number of years during which such assets are serviceable. The amount depreciable in one accounting period for tangible assets is computed on the assumption that the salvage value of the assets is 10 percent of the acquisition cost as mentioned above. However, the cumulative depreciable amount is 95 percent of the acquisition cost, which means that the taxpayer may depreciate until the residual value of the assets reaches 5 percent of the acquisition cost.

Ordinarily in the case of tangible fixed assets, the taxpayer may elect one of the following two methods of depreciation as prescribed in the Cabinet order:

(a) Straight line method, which spreads the annual charge evenly over the asset's useful life.

(b) Declining balance method, which allows an annual charge computed at the prescribed rate according to the asset's useful life on the net book value of the assets.

In the case of intangible fixed assets, deferred assets, and other properties such as cattle or fruit-trees, only the straight line method can be used. The production method may be selected for tangible fixed assets for mining use. As to mining rights, either the straight line method or production method can be selected. Goodwill may be amortized freely at the discretion of the taxpayer (both corporations and individuals). Among deferred assets, initial expenses, research and development expenses, bond-issuing expenses, etc, may be amortized freely by corporations.

Depreciation methods other than those mentioned above may be used upon formal approval of the tax authorities.

The useful lives of fixed assets for computing the tax allowable depreciation are prescribed by law.

Examples of the statutory useful lives of assets used for business purposes are as follows:

Description of assets	*Useful life (years)*
(1) Tangible fixed assets other than machinery and equipment:	
Reinforced concrete buildings (for office)	65
Wooden buildings (for office)	26
Steel vessels (2,000 tons or more)	15
Airplanes (for international service)	10
Electronic computers	6
Desk, chairs or cabinets made of metal	15
Air-conditioners or heaters	6
Typewriters	5
Trucks (for transport business)	4
Automobiles (sedan)	6
(2) Machinery and equipment:	
Chemical condiment manufacturing plants	7
Beer brewery plants	14
Pulp manufacturing plants	12
Chemical fertilizer manufacturing plants	10
Polyvinyl chloride manufacturing plants	8
Rayon yarn or rayon staple manufacturing plants	9
Iron and steel manufacturing plant	14
Metallic machine tool manufacturing plants	10
Electrical machinery and appliances manufacturing plants	11
Automobile manufacturing plants	10
Radio or television broadcasting equipment	6
Hydraulic power generation plant for electric utilities	22
(3) Intangible fixed assets:	
Patent rights	8
Utility model rights	5

The statutory useful lives of assets have been determined on the assumption that the assets are new at the time of acquisition and are used in a normal manner. In certain cases, measures are available to adjust such statutory useful lives to the actual condition of assets.

In addition to the ordinary depreciation described above, special depreciation measures have been instituted to attain certain policy aims. Such special depreciation is, in principle, allowed only to taxpayers filing a blue return.

These special measures for depreciation are broadly grouped into two categories, i.e., increased initial depreciation and accelerated depreciation. The increased initial depreciation measure allows, in addition to the ordinary depreciation, deduction of a portion of the acquisition cost of an asset for the first accounting period in which such asset is acquired. On the other hand, the accelerated depreciation measure permits a taxpayer to deduct a part of the acquisition cost of an allowable asset, in addition to the ordinary depreciation, for certain consecutive accounting periods.

However, it should be noted that neither measure allows the cumulative amount of depreciation to exceed the acquisition cost of the assets concerned. In effect, they provide the benefit of deferred payment of taxes or interest-free government loans but not tax exemption.

Special depreciation is allowed for certain designated machinery and equipment, etc., acquired and put into business use within the period specifically prescribed by the Ministry of Finance notification.

Examples of increased initial depreciation

Machinery and equipment used for the prevention of environmental pollution . . . 27 percent of the acquisition cost.

Machinery and equipment designed to prevent environmental pollution . . . 20 percent of acquisition cost.

Energy-saving machinery and equipment . . . 20 percent of the acquisition cost.

Certain machinery and equipment composing an integrated system such as a combination of electronic equipment for data analysis and industrial machinery . . . 13 percent of the acquisition cost.

Examples of accelerated depreciation

Machinery, equipment and building of an enterprise where at least 20 percent of the employees are handicapped persons . . . Special additional depreciation of 20 percent of the ordinary depreciation.

Houses newly built for rent . . . Special additional depreciation of 50 percent (75 percent in the case of houses whose useful lives are 45 years or more) of ordinary depreciation allowances for the first 5 years.

B. CREDIT

1. *Investment tax credit*

An investment tax credit was first introduced in 1978 as a temporary measure to encourage investment in specific industrial facilities such as energy-saving facilities or anti-pollution facilities.

In the 1979 tax reform, the investment tax credit was retained for two more years as a measure to accelerate the transformation of the Japanese industrial structure into more efficient and energy-saving industries. The new investment tax credit in effect from 1979 is allowed only to enterprises engaged in industries which are specified by law and Cabinet order as permanently depressed industries or to certain small and medium-sized enterprises.

Eligible enterprises can credit from their income tax 10 percent of the acquisition cost of new machinery and equipment purchased during an accounting period, with a credit ceiling of 20 percent of the income tax due. The carry-over of unused credit is allowed for three years.

By the 1981 tax reform, a corporation which acquires (either purchases or constructs) the following new machinery, equipment and other depreciable assets (qualified property) during the period April 1, 1981 to March 31, 1984 and uses them in its own business (excluding leasing business) within one year after the acquisition may claim a corporation tax credit of 7 percent (5.25 percent for machinery and equipment in b) below) of the acquisition cost of such machinery and/or equipment for the accounting period during which they are put into business use. If the amount equivalent to 7 percent of the cost exceeds 20 percent of the corporation tax, the excess can be carried forward and a tax credit (limited to 20 percent of corporation tax) can be claimed against corporation tax for the accounting period(s) which ends within one year after the accounting period during which such qualified machines and/or equipment were put into business use.

The following are the qualified machinery, equipment and/or other depreciable assets as designated by the Minister of Finance.

(a) Machinery and other depreciable assets which directly contribute to save energy resources by means of prevention of energy losses, utilization of waste energy, rationalization of energy consumption, etc., and of which installation is matter of emergency.

(b) Machinery and equipment which directly and remarkably contribute to effective usage of energy resources and improve manufacturing functions, continuous manufacturing process and other manufacturing or processing methods, and of which installation is a matter of emergency.

(c) Machinery and other depreciable assets which contribute remarkably to the usage of energy resources other than petroleum or those which contribute to the prevention of public pollution derived from the usage of energy resources other than petroleum, and of which installation is a matter of emergency.

(d) Machinery and equipment similar to that of (b and c) above, which are used by a medium or small size corporation (as defined).

In lieu of taking this special tax credit, a corporation may, at its discretion, take a special increased initial depreciation of 30 percent of the acquisition cost.

Similar treatment is applicable to individuals who are engaged in business.

2. *Credit for increase in research and development expenses*

If research and development expenses exceed the largest amount of such expenses for any preceding accounting periods since 1966, 20 percent of the excess amount may be deducted from the corporation income tax. The maximum amount deductible is 10 percent of the corporation income tax.

Similar treatment is applicable to individuals who are engaged in business.

C. GRANT AND SUBSIDIES

The Japanese tax laws provide no direct grants or subsidies to stimulated capital formation. The investment credit and the credit for the increase in research and development expenses referred to above may be used only to reduce the tax otherwise payable, but can in no event result in a cash refund to the taxpayer.

D. CONFORMITY REQUIREMENT

As to a corporation, depreciation or amortization is deductible to the extent of the amount allowed under the tax laws, only if charged to income in the official books of account.

In the case where the depreciation charges are less than the statutory allowable amount, the unused portion may, in principle, be deductible after the statutory useful life elapses. Depreciation charges in excess of the statutory allowable amount are not deductible for tax purposes in that year, but the excess is deductible in subsequent accounting periods where the charged amount in the subsequent period is less than the statutory allowable amount.

As to an individual who engages in business, depreciation or amortization is deductible at the amount computed under the tax laws (based on the statutory useful life and the selected method).

E. RESEARCH AND DEVELOPMENT COSTS

Japanese tax law permits a corporation to deduct research and experimental expenses when incurred, if charged to income in the official books of account. A corporation may select to capitalize such expenses and amortize them freely by charging to income in the official books of account. Certain depreciable tangible fixed assets used for research and development may enjoy shorter useful lives than normal statutory useful lives. An individual must capitalize research and experimental costs and claim amortization over the useful life of 60 months.

There is a credit for an increase in research and development expenses as discussed in B. 2 above.

F. ASSETS DISPOSITION

1. *Corporations*

In principle, capital gains realized from the sale, exchange or transfer of assets are aggregated with other sources of income (or loss) and subject to corporate income taxes at the ordinary rate. A loss from disposition of assets is deductible as an ordinary loss. Capital gain or loss is computed as the difference between the amount of sales proceeds and the net book value of the asset (after deduction of accumulated depreciation).

In addition to the ordinary corporate income taxes, capital gains from the sale of land acquired on or after January 1, 1969 are subject to a "Special surtax on capital gains from land". This special surtax rate is 24.14 percent (i.e., corporation tax of 20 percent and inhabitants tax of 4.14 percent).

There are the following special tax treatments on capital gains, if certain requirements are met:

(*i*) *Tax Deferment by Succession of Book Value of Old Property*

In the case of gains realized from exchange of properties, or in the case of new properties being acquired from payments of insurance losses or government subsidies, the cost basis of such properties may be reduced to the same basis as that of the old properties. In this way, taxation of the profits derived from these transactions is deferred.

(*ii*) *Tax Deferment for Replacement of Specific Business Assets*

If a corporation sells land and buildings located in the certain specified area such as a densely populated area, and buys similar property located in another specified area, such as a depopulated area, within the accounting period in which such sale is made and puts the new property in use within one year from the date of acquisition, the cost basis of the new assets may be reduced to the same as that of the old assets, provided that certain procedural requirements are met. If the replacement assets have not been purchased by the end of the accounting period in which the sale was made, the amount equivalent to gains from the sale intended for purchase of the new assets must be shown in a separate account and added back to income of the subsequent accounting period in which the purchase is made. The cost basis of the new assets may also be reduced to that of the old assets.

If the properties mentioned above are exchanged, the same provisions as mentioned above apply.

These special measures are designed as part of national land policy to cope with the urban population problem and to facilitate the industrial zone planning and efficient use of land.

The above treatment is granted to the replacement of ships as well, since the 1974 tax reform.

(*iii*) *Special Taxation of Capital Gains From Expropriated Properties*

When a corporation acquires a new asset in lieu of an expropriated asset within one year from the date of such expropriation, the cost basis of the new asset may be the same as that of the expropriated asset, and no gain is presumed from the transaction. Any additional amount paid for the new asset, over and above the expropriation proceeds, is added to the old cost basis in obtaining the cost basis of the new asset. Instead of such tax deferment, a taxpayer may elect to be taxed on capital gains arising from the expropriation with the deduction of 30 million yen.

If the replacement is not purchased before the end of the accounting period in which expropriation was made, the expropriation gains must be shown in a separate account and added back to the income of the subsequent accounting period in which the purchase of a new asset is made. The cost basis of such an asset may also be reduced to that of the old expropriated asset.

This taxation takes into account the fact that such gains are derived from the involuntary alienation of properties forced by public necessity.

(*iv*) *Other Special Deductions for Capital Gains From Land*

A deduction of 20 million yen applies to the sale of land to the Japan Housing Public Corporation or the government, local or national, under the laws relating to land.

Corporations which sell land to persons who carry on the business of developing land for housing are granted a deduction of 15 million yen.

A special deduction of 5 million yen applies to the transfer of agricultural land, etc., by a corporation engaged in agricultural production for the purpose of the rationalization of agricultural land holding.

2. Individuals

In principle, capital gains are aggregated with other sources of income after deduction of necessary expenses and a statutory basic deduction of ¥500,000. If the assets transferred were owned for more than five years, the capital gain is regarded as a long-term capital gain, and the taxable basis is reduced to 50 percent of the net capital gain after deduction of the statutory basic deductions.

However, gains from the transfer of securities are exempted from Japanese individual income taxes except for the following income:

(a) Income from continuous trading in securities (more than 50 transactions involving more than 200,000 shares per year);

(b) Income from the sale of securities of identical issue, amounting to not less than 200,000 shares per year;

(c) Income from the sale of shares accumulated for the purpose of increasing the price of such shares by obstructing normal trading (known as "forestalled shares");

(d) Income from the sale of "special information issues" as designated by the Stock Exchange amounting to not less than 200,000 shares per period fixed by the Stock Exchange;

(e) Income from the sale of shares where a taxpayer, together with his relatives, has owned at any time during the year of sale or in the two preceding years 30 percent or more of the total issued shares, sold 5 percent or more of the total issued shares within the year covered by the return, and sold 15 percent or more of the total issued shares within three years.

(d) Income from the sale of securities embodying the right to use facilities.

In the case where land, buildings, ships, or machinery and equipment owned by a taxpayer for one year or more are exchanged for other property of a similar kind which was owned by other persons for one year or more, which was not acquired for the purpose of the exchange, and further the newly acquired property is used in the same way, then such property is treated as not being transferred, and the cost basis of the property exchanged is treated as that of the newly acquired property.

Despite the above rule on capital gains, special taxation measures apply for capital gains derived from the transfer of real property, such as land, rights to use land, buildings and structures. Such capital gains are taxed separately from other sources of income.

(1) Capital gains from real property acquired before January 1, 1969 (long-term capital gains).

Tax amount is computed as follows:

(i) If taxable capital gains are ¥40 million or less—26 percent (20 percent national tax, 6 percent local inhabitants tax) of taxable capital gains.

(ii) If taxable capital gains are over ¥40 million, up to ¥80 million—Y10.4 million + regular income tax rate × (½ of taxable capital gains + other source income)—regular income tax rate × (¥20 million + other source income).

(iii) If taxable capital gains are over ¥80 million—¥10.4 million + regular income tax rate × ((Taxable capital gains − ¥80 million) × ¾ + ¥40 million + other source income)—regular income tax rate × (¥20 million + other source income).

(2) Capital gains from real property acquired on or after January 1, 1969 (short-term capital gains).

Tax amount payable is the larger of the following (i) or (ii):

(i) 52 percent (40 percent—national tax, 12 percent—local inhabitants tax) of the short-term capital gains.

(ii) 110 percent of national and local taxes applicable to the short-term capital gains after aggregating the short-term capital gains with other source income.

In order to determine taxable capital gains from transfer of real properties, the following amount is deductible depending upon the circumstances:

(Example)

	Millions
Land transferred due to expropriation	¥30
Transfer of land and building used for the taxpayer's own residence	30
Transfer of land to governments, etc. for certain land readjustment projects	20
Transfer of land for certain residential land development projects	15
Transfer of land for the purpose of rationalization of farm land ownership	5
Other general cases (applicable for long-term gains only)	1

Examples of other special tax treatments of capital gains are shown below:

Special tax treatment of capital gains derived from expropriation, etc.

(i) If a taxpayer, whose land or other property, including the right to use land, has been expropriated under the Land Expropriation Law, the City Planning Law, the River Law and other laws, spends all of the proceeds from expropriation to acquire replacement property, or if such a taxpayer acquires, from the expropriator, property of the same kind as the expropriated property in lieu of payment for expropriation, such a transaction is treated as nonexistent for tax purposes.

(ii) If a taxpayer spends part of the proceeds from expropriation to acquire the replacement property, only the amount of such proceeds exceeding the cost of the replacement property is taxable.

In both these cases, however, the special deduction of 30 million yen mentioned above is not applicable.

The same tax treatment as above is granted when land, etc., has been transferred under the projects, by which landowner's rights to use, exploit or dispose of land is restricted to an extent similar to an expropriation, etc.

Special tax treatment of capital gains from replacement of property held for business use by onerous alienation or by exchange

(1) If an individual taxpayer replaces his land or building, etc., which were held for business use and were located in a specified area during the period from January 1, 1970 to December 31, 1985, with land, including buildings thereon, located in another specified area during a specific period (in principle, in the year when such sales took place, or the year preceding or following that year), and puts it into business use within a year after the acquisition of such land, the following special measures are applicable:

(i) If the sales price of that property (land, buildings, etc.) does not exceed the cost of newly acquired property, a transfer of that property is deemed not to have taken place, and the capital gains from that transfer are not taxable;

(ii) If the sales price of that property exceeds the cost of the newly acquired property, a transfer of that property is deemed to have taken place only to the extent that the sales price exceeds the cost of the newly acquired property, and the capital gains, representing the difference between the sales price and such cost, are subject to taxation.

These special measures are also applicable to the exchange of property held for business use, if certain such conditions are satisfied.

(2) These special measures are applicable to replacement property held for business use, only if such replacement takes place in a move which follows the national land policy. Fifteen types of such moves are designated, including:

(i) Moves from over-populated areas such as Tokyo and Osaka to areas outside;

(ii) Moves to industrial zones and other areas when promotion of industries is found particularly necessary;

(iii) Moves in accordance with specific policy designed for effective use of land in over-populated areas; and

(iv) The case where an individual transfers his land which was held for a long period and acquires only depreciable assets.

(3) When these special measures are applicable, the cost basis of the newly acquired property is deemed to be the same as the cost of the property sold, for the purpose of depreciation. Thus, these special measures are not to exempt such capital gains from tax, but only to postpone such taxation.

Special tax treatment for rollover or exchange of land for use of construction of high-stories fire-proof condominium buildings

In order to utilize already cramped areas by construction of high-stories buildings, special tax benefits of deferral of taxation on capital gains are available to those who dispose of their land in Tokyo, Osaka, Nagoya and their suburbs, and acquire whole or part ownership of fire-proof condominium buildings of 4 stories or more constructed on that land.

G. OTHER SPECIAL INCENTIVES FOR INDIVIDUALS

1. Dividend income

As a general rule, dividends paid by a Japanese corporation must be aggregated with other sources of income and the graduated tax rates applied to the total. Taxes withheld at the rate of 20 percent at the source, as well as the special dividend tax credit, may be deducted from the computed tax.

However, a resident taxpayer may elect, by filing an election report with the payer, not to aggregate the dividends (noted below) received from a Japanese corporation. (The dividends in (b) below are aggregated with other sources of income for local inhabitants tax purposes.) In such instances, a special increased withholding tax rate of 35 percent is applied.

(a) Dividends received from a Japanese security investment trust.

(b) Dividends less than ¥500,000 (¥250,000 per semi-annual period) from a single Japanese corporation, provided that the taxpayer does not own 5 percent or more of the total issued shares.

In addition, dividends not in excess of ¥100,000 (¥50,000 per semi-annual period) from a single Japanese corporation need not be declared in the return for years up to December 31, 1983 although they are subject to the basic 20 percent withholding tax.

The above special measurement for separate taxation on dividend income will be terminated by December 31, 1983.

2. Interest income

In general, interest income must be aggregated with other sources of income and the graduated tax rates applied to the total. However, for years up to December 31, 1983, a resident taxpayer may elect, by filing an election report with the payer, not to aggregate interest on Japanese public bonds, Japanese corporate debentures, bank time deposits in Japan, etc., in which case, a 35-percent withholding tax rate is applied rather than the basic rate of 20 percent. However, interest income from ordinary deposits, call deposits and certain other designated deposits need not be aggregated although they are subject to a withholding income tax of 20 percent.

As well as dividend income, starting from January 1, 1984, interest income must be aggregated with other income and the separate taxation will be terminated on December 31, 1983.

Exemption from taxation on interest income from small savings etc.

If certain designated documents are filed with the tax office through the payer of such interest, a resident taxpayer may be exempt from income tax (including withholding tax) on interest earned from certain qualified deposits, bonds and investment trust sercuities with principal of up to ¥3 million. In addition to the above, for years up to December 31, 1985, a resident taxpayer may also be exempt from income tax (including withholding tax) on interest earned from certain qualified National and/or Local Government Bonds to the extent of ¥3 million of the aggregated face value amount, if documents similar to those above are filed. Additionally, if certain designated documents are filed with the tax office through the employer by the employee the resident taxpayer may be exempt from income tax on interest earned from certain qualified deposits, bonds and investment trust securities with principal of up to ¥5 million based on an agreement between the employee and financial institutions or security companies under the provisions of the Law for Promotion of Workers' property. Interest on postal savings may also be exempt from income tax. The aggregate sum of postal savings may not exceed the amount of ¥3 million.

3. Economic benefit on interest-free or lower rate loans from an employer for the acquisition of the employee's own residential property

The taxable economic benefit derived by an employee from loans either free of interest or at a low rate from an employer for the acquisition of the employee's own residential property is recognized as an amount equal to 3 percent per annum on the loan(s) less interest charged by the employer. When an employee obtains a loan directly from a bank for the purposes of acquiring his own residential property and the employer subsidized a part or all of the interest payable to the bank, the taxable benefit is recognized as an amount equal to 3 percent per annum on the loan(s) less net interest borne by the employee. This rule applies for the period from April 1, 1978 to December 31, 1982.

Senator **Jepsen**. Mr. Yawata, in American plants workers report to foremen who in turn report to management and the divisions tend to be rigid. Yet in Japan, and it's not uncommon as I understand it, for the plant manager or even the company president, as you indicated, to have a social glass of sake or beer with a benchworker. Now doesn't that tend to dilute the authority required to run a complex modern plant?

Mr. **Yawata**. The authoritative consideration may be different in this country than the one in Japan. Beer drinking or sake drinking of a chairman or a general manager of a plant with a benchworker does not indicate that the general manager or the president has lost his dignity or authority. They discuss their private matters as well as their jobs as they drink sake, and it can be anything that may be discussed between the plant manager and the benchworker. It is not considered to be a breakage of a social class.

Senator **Jepsen**. Is it done regularly and often?

Mr. **Yawata**. Well, I would not say that our chairman drinks sake with a benchworker more than once a year, but when he does come to a factory and has a party or a reception, he does chat with almost everybody at the party.

Senator **Jepsen**. Now you say at the close of your remarks that as a new president of NEC Electronics U.S.A., you will strive for a mix of Japanese and American management styles. Now what do you hope to get from the American style?

Mr. **Yawata**. Well, since the corporation is American, I do not think we can use the Japanese management style throughout the organization, so I intend to start using American style management first and then introduce various Japanese management methods in with the American style.

Unfortunately, there is no model or textbook, so we have to seek our own way, and I cannot present here today how we are going to proceed. We have to find every day what we can do best.

Senator **Jepsen**. Congressman Richmond.

Representative **Richmond**. Thank you, Senator.

Well, Mr. Yawata, I know Sony's factory in San Diego is considered to be the best factory that Sony has in the entire world, so I'm quite sure that our American workers can be trained to work quite productively.

You mentioned savings. I know Japanese savings represent something like 24 percent. What exactly are the average Japanese workers investing in, Government bonds or savings accounts?

Mr. **Yawata**. It is in various forms. It could be in post office savings, or bank deposits, or in the form of Government bonds. Saving is encouraged by the Government, and there is some incentive. One incentive says that up to $15,000 per person is not taxed—I mean the interest from $15,000 is not taxed.

Representative **Richmond**. That's the total or per year?

Mr. **Yawata**. Total savings. Or it is saved for a special purpose such as housing; house building or buying, and here there is also a certain amount which is not taxed. So there are various forms of incentives to increase savings.

Representative **Richmond**. So, in other words, if a Japanese couple plans to buy a house in the future and let's say they need $100,000, they could save that $100,000 tax free until they were ready to buy the house?

Mr. YAWATA. I do not remember the exact amount of money that is not taxable, but there is a certain amount of savings for special purposes such as housing which is not taxed. That is correct.

Representative RICHMOND. What is the rate of interest that the average Japanese saver will get on his post office savings or his Government bonds or whatever?

Mr. YAWATA. Interest rate?

Representative RICHMOND. Yes.

Mr. YAWATA. Let's see. Right now I think you can get up to 7.5 percent a year on 2-year fixed deposits. The Government bond is up to 8.75 or something like that. I don't remember the exact numbers, but it is in the vicinity of 8 percent a year.

Representative RICHMOND. In other words, your savings and thrifts pay a couple percent more than ours do and your Government bonds pay somewhat less than ours?

Mr. YAWATA. That is correct, and it is a pure income because it is not taxed.

Representative RICHMOND. Your operation here will be in the field of manufacturing electronics in California?

Mr. YAWATA. Yes; manufacturing of large-scale integrated circuits in California.

Representative RICHMOND. For use in the American market?

Mr. YAWATA. Yes.

Representative RICHMOND. Is that Nippon's first investment here in the United States?

Mr. YAWATA. It is not the first of Nippon Electric's as a corporation, but it is the first major electronic components investment of Nippon. Nippon Electric has various other businesses—communication and computers. There are a couple of telecommunications factories which were established prior to our components activities.

Representative RICHMOND. In this whole question of productivity on which we have had a number of sessions in the Joint Economic Committee, I think we're often forgetting the one item the Japanese have and the Germans have that we Americans don't have. Namely, a very, very close relationship between labor and management. I believe nobody said that so far this morning.

I have been a manufacturer all my life and I know the only way you will ever get productivity out of a factory is if your labor and management work together as a team. Now I am quite sure that Japan's labor unions and management work very closely together, don't they, Mr. Yawata?

Mr. YAWATA. Yes; because the line between the labor union and the corporate management is very vague. In other words, any member of the union may become a corporate manager as he is tested and proven to be a good manager. So there is—of course, it is not an adversarial relationship between corporate management and the labor union, but rather cooperative.

Representative RICHMOND. Does the Government act as a catalyst in helping labor and management to work together?

Mr. YAWATA. Government encourages closer relationships, but it does not impose any force to have cooperative relationship between the labor union and the company management. I think it is more privately done within the corporation.

Representative RICHMOND. The thing we have to understand in discussing productivity is in Japan where export volumes are constantly increasing the gross national products, your workers are never afraid of being laid off and therefore your unions aren't likely to put the strictures on your workers that they might in the United States where there's a relatively stagnant level of growth.

Many of our workers, if they work too hard on any given job, it might mean that one of their friends will be laid off. As a result, many of our unions put on daily quotas where a union maker can only make 100 or 200 forgings a day, and that's one of the great problems we have in the United States today, the fact that we don't have a good understanding between unions and management and that unions in many cases control our factories by controlling productivity. It's not the worker who's incapable of producing. It's the labor union leader who must run for reelection every year among these workers and who won't get reelected unless he gives the workers something better than they have—more money, more vacation pay, more wash-up time, better lunch hours, more paid vacations, more hospitalization, more retirement, less work per hour—that's the great problem we have in this country today, that a labor union president, in order to get himself reelected every year, must offer his workers some type of bonus. Otherwise, somebody else is going to get elected. And I don't really know how we're going to get out of this mess until Government steps in and forces labor and management to work on a little more sensible basis.

I know any number of factories that are literally, by 2 p.m. in the afternoon, closed down because they have made the number of items the union has prescribed and no worker would dare to make another one.

Mr. YAWATA. Let me explain what has happened in the last 10 years when the growth of industry flattened. In 1970 when I was in an LSI factory as manufacturing manager, we had a recession. We did not lay off people, but we cut work hours by 30 percent and we let them go home at 4:30 rather than 5, but still we had so many unproductive hours. So we let them weed the grass at the playground, and they were glad to do that because that way the playground was much cleaner. So besides making LSI's, they weeded, and this happens quite often in Japan.

Representative RICHMOND. I'd like to see you get the UAW to do that.

Mr. YAWATA. I know it is difficult and almost impossible in this country, but as I said, in Japan the union is not based on trade. So weeders are not separated from a transistor assembly person. They can have two jobs.

Representative RICHMOND. All the way back to 1950 I had a company that manufactured gears in Detroit—500 workers—and I went out to lunch one day and came back at 1:30 p.m. with my most important client—and there wasn't one single wheel turning in the entire factory. Every worker was reading or eating an apple or chatting with his neighbors or just standing around doing nothing. I said, "What happened?" They said, "We made our production for the day," and there they were sitting there until 5 p.m. that afternoon. And this is the type of union-management relationship that's been built up in the United States, where we basically only get about 30 minutes of work out of an hour from our average workers. It's not because of the productivity, because the American worker is perfectly happy to work an hour for an hour's pay, except for our union structure. The leadership must keep offering that worker something every year in order to get himself reelected, and here's an area where I think the Federal Government has got to help change the entire conduct of labor-management relations. Organizations like Dr. Gray's American Productivity Society I think do a great deal of good, too.

Mr. Hague, you mentioned how Congress can improve the tax structure of business and I agree that it's long past due. Certainly our depreciation code is about as antiquated as any industrialized nation in the world. Certainly we do make it difficult for foreign American workers to work abroad. Many things you said make a lot of sense. But you didn't mention some of the other key things. You have been in Japan for 10 years. I'm sure you realize how hard it is for America to ship its goods to Japan as against the Japanese shipping goods to the United States. We are about as open and free trade as any nation in the world. We have fewer restrictions of any type. As a result, $31 billion worth of highly manufactured Japanese goods were shipped into this country last year.

On the other hand, I wonder how you feel about the fact that the Japanese make it almost impossible for Americans to ship their manufactured goods to Japan. The only thing Japan will accept from us are those nonrenewable natural resources which they must have in order to survive which we Americans make very little profit on and actually have very little available anyhow.

Mr. Hague. Well, you have opened a whole new subject.

Representative Richmond. Hasn't that bothered you all the years you have been in Japan?

Mr. Hague. Of course, we fought the battle constantly. We ended up forming in 1978 what was called a Trade Study Group between our Embassy's commercial section and the American Chamber of Commerce and representatives of the Government of Japan from their external trade organization. We got into a specific study of these problems—barriers, resistances through imports. Japan is a signatory to GATT, of course, and the Multilateral Trade Negotiations and legally and on paper can prove I feel that she's equivalent to any modern industrial nation in her import legalities, but it doesn't result in our getting an open market in Japan and certainly in no way is reciprocal with our own. But I have ended up, after a decade of residence there and now after a year of living in my own country and looking at it a little more objectively, recognizing that we may never have worked at the problem hard enough as Americans marketing abroad, and I look within my own company and others like me.

What happened in the early sixties when the tariff barriers went up, we tried and gave up.

Representative Richmond. But you know, Mr. Hague, we don't have tariff barriers in this country. Mr. Yawata said America and Japan are two of the most important trading partners in the world, which isn't exactly correct; but we are good trading partners. How come on one side we have the most rigid trade barriers that can possibly be devised, making it physically impossible for us to ship goods to Japan? A Chevrolet in Detroit might cost $8,000. That same $8,000 Chevrolet in Tokyo would be $16,000.

Mr. HAGUE. At least.

Representative RICHMOND. A Toyota in Detroit would cost the same identical price as a Toyota in Tokyo. You're talking about a 100-percent differential in this case because of taxes and quotas and regulations and God knows what. So the Japanese have made it physically impossible for us to ship anything but nonrenewable natural resources into their country, and I wonder what a company like Borg-Warner—doesn't that bother you folks terribly?

Mr. HAGUE. Constantly.

Representative RICHMOND. Because all of your products should be exported to Japan; shouldn't they?

Mr. HAGUE. I think America should have the stiffest local contents policies in the world whereby we demand that any car on our roads comprise 70 or 75 percent local content. We don't do that.

Representative RICHMOND. What type of products could Borg-Warner ship to Japan?

Mr. HAGUE. We're shipping products now. Where we work harder, where we get wheelers and dealers and markets over there sufficiently. We're shipping emission control devices that Japan isn't producing yet. We're shipping automotive air-conditioning compressors over there in large volume because we make a better one. Our economies of scale are still larger than theirs. We're shipping products there. We're ,now shipping manual transmissions over for specialized automobiles for the sports cars and that kind of thing because we make them better and the manual transmission is coming back into its own in performance cars where economy of energy is concerned.

Representative RICHMOND. But basically you're shipping those materials that Japan doesn't manufacture?

Mr. HAGUE. Well, sure. I referred to Japan's true industrial policy whereby industrial structuring took place and all tax laws and tariffs and every other regulation concerning imports or any possible competition were ordered by government to fit the situation and when Japan decreed for itself an automotive industry in the late 1950's they protected it until it has grown into the leadership industry in the automotive world, having produced more cars last year than Detroit did.

Representative RICHMOND. Isn't it strange that we in America allow any Japanese product to come into the United States even though invariably we ourselves manufacture that same product?

Mr. HAGUE. How are you going to change—the American is the most curious, receptive, eager consumer of foreign products.

Representative RICHMOND. We're not going to change America. I agree with you. We should remain free traders. That's how our country has grown. We have imported people and products. We have been the great free trade country in the world.

On the other hand, I think we ought to expect that same treatment from our partners.

Mr. **Hague**. Reciprocity is the whole word for the American businessman overseas, Congressman, and I trust that our laws can take that into account in local content and other matters.

Senator **Jepsen**. Would the Congressman yield?

Representative **Richmond**. I've taken much more time than I deserve.

Senator **Jepsen**. With your permission, Congressman, I would like to ask Mr. Yawata if he cares to comment on any of this discussion?

Mr. **Yawata**. Yes; I would like to comment.

Senator **Jepsen**. Please do.

Mr. **Yawata**. Concerning barriers to importing to Japan, there may be some barriers and I know that the integrated circuit duty is higher on the part of Japan than the United States—which the two administrations recently have agreed to reduce to the same level. But besides that, I do not know of too many industrial items which have higher duty on the part of Japan than the United States. Certainly automobiles are not charged any duty. They are duty-free into Japan.

However, because of the size of the cities, the width of the roads and so forth, the Japanese people do not drive large cars. So if American automotive manufacturers build the same size cars and competed with the Japanese manufacturers, I'm sure there would be a lot of Japanese who would buy American-made cars.

The Japanese people are not close-minded. They are open-minded and, in fact, until about 1965, any U.S.-made products were prestigious products. I still remember that I used to buy American made cosmetic products, because they were better than the Japanese and it was prestigious to have American products at home. I remember my mother using a Sunbeam toaster because it was better than the Japanese toaster. But now Japanese manufacturers are making better products than American made products and if you come to Japan and look at the department stores or any other stores, there are many Japanese items that are better than imported products. So the imported products must compete with the domestic products. The Japanese people do not buy Japanese products because they are made domestically. It is because they are better that they buy them.

So I think the Japanese market is wide open to imported products.

Senator **Jepsen**. Thank you. If I may ask to be excused, I have to take part in a seminar or something like that that helps to teach what goes on in hearings like this and what people might expect. So it's been very interesting. I wish I didn't have to go, but Congressman Richmond will take over. Thank you both for coming. It's been one of the most profitable hearings we have had and I think the information gained here will be very helpful to all of us.

Congressman Richmond, will you take the Chair.

Representative **Richmond** [presiding]. Thank you, Senator.

Mr. Yawata, I agree with you. I just spent 51 days in Japan. Japanese products are fantastic and the multiplicity of Japanese products is mindboggling.

But now let's talk about food products. How do you feel about food products? When you and I know that your colleagues in Tokyo are paying five times or more for their beef than they have to, a five times rise, and twice as much for their dairy products, don't you think there the Japanese consumer is being shortcutted and that in turn the American economy is also being shortchanged, and don't you think that's one area that we should do something about? You know as well as I do that your government spends the largest part of its total budget subsidizing 600,000 farmers. That subsidization takes the money from the other Japanese who need that money for housing, but instead it goes into farming; and you know as well as I do that that $10 billion deficit trade balance could easily be made up in our processed meat, rice, and dairy products where we could supply the Japanese market at one-fifth your present costs.

Now isn't the average Japanese person in the street a little upset about all that? Why should he pay $2 a pound for rice when we could see that it was delivered to him at 40 cents a pound? Why should he pay $15 a pound for average beef, not top grade beef but average beef, when we could get him that same identical beef for $3.50 or $4 a pound?

Mr. YAWATA. As a consumer, I would like to see beef, oranges, and any agricultural products removed from the quota system. However, I am not sure that would change the amount of beef importation, because Japanese people do not eat beef that much anyway.

Representative RICHMOND. 500,000 tons last year. That would be roughly 10 pounds per capita. If we were allowed to ship that 500,000 tons of beef instead of subsidizing your farmers for 500 percent more than that beef should cost, just think how that would rectify the deficit dollars of trade we have in this country, how much more the American people would feel like buying Japanese products in general.

Mr. YAWATA. Yes; I would like to see beef imported because I happen to like it myself, and I like good American beef. Every time I go back to Japan from California I buy about 15 pounds of beef myself; because there is no quota on an individual basis.

Representative RICHMOND. And you pay roughly $3.50 a pound for it?

Mr. YAWATA. That is right, and it is a top grade beef.

Representative RICHMOND. And rice the same thing. Our Louisiana rice which we can produce and sell at $400 a ton is equal to your rice which is subsidized at $2,000 a ton. What bothers me here is we Americans pick up $31 billion of your manufactured goods every year, goods we can nicely live without, but we Americans are free traders and, as Mr. Hague says, we are curious people and we love to buy luxury goods and, fortunately, Americans can afford them, but on the other hand, it seems to me the Japanese consumer himself must be a little upset by the fact that he's paying five times as much for his food.

Mr. YAWATA. It is true that food is very expensive in Japan.

Representative RICHMOND. And unnecessarily so.

Mr. YAWATA. And unnecessarily so. I agree. The congressmen in Japan are elected by farmers and whatever they have as voters. I think it gets out of the hands of other consumers, and I think only time will solve that problem.

Representative RICHMOND. Is there any movement in Japan to demand a reapportionment? I know your Supreme Court ordered it, but your Diet hasn't put it into effect. Your Diet, as you know, hasn't been reapportioned since World War II. So basically, you've got many Diet members representing almost no people in the rural areas and then you've got other Diet members representing gigantic lots of people in Tokyo.

Mr. **Yawata.** Yes.

Representative **Richmond.** It's on the ratio of 1 to 10. Now doesn't it appear the Japanese, who supposedly have a totally democratic government, that this in effect is disenfranchising all of those Japanese that live in the urban areas from Yokohama up to Nagasaki.

Mr. **Yawata.** There is a lot of discussion going on, but as I said earlier, it takes a great deal of time to form a consensus and make a decision, and I think that is why they are spending so much time discussing it. I would like to see Congressmen who are Diet members be elected on a fair basis representing the voters' opinions, but, unfortunately, we have not seen it yet.

Representative **Richmond.** Unquestionably, once you did get a Diet representing the people, I believe then you would have an entirely different trade policy toward the United States because that Diet which then represented the consumers, not the farmers, would realize what a great demand it would be to buy an extra $10 billion worth of food from the United States, saving themselves $35 billion in subsidies, and also rectifying this deficit balance of trade they have with the United States.

Mr. **Yawata.** It is to our interest in industry that we can export more if Japan imported more foods. It will be to our interest, so I would like to see that happen myself. However, we do not have that much control over the Diet at this point in time.

Representative **Richmond.** I wonder if either you or Mr. Hague can tell me of any trade barriers affecting nonagricultural goods. In all my discussions and investigations, I have always come up with beef. In other words, why ship the Japanese 7 tons of corn so they themselves can produce a ton of beef in Japan at a cost five times ours? Why not ship them a ton of boxed beef which would be efficient, neat, economical, and would save everybody at lot of money? Then I get into rice. Then I get into dairy products where we buy the Japanese market of 50 percent over cost. Vegetables, I think the Japanese requirements are so rigid and I do believe there's a market for everybody. Citrus and dairy and beef and rice, there's no question that trade barriers should be lifted. Can you tell me some manufactured goods that would also fall in that category where right now there are rigid trade barriers you feel ought to be lifted? In my own work, it would help me if I could identify some industrial products.

Mr. **Hague.** Well, I think in machine tools Japan is just about at capacity now. They are going to have to spend a lot more money expanding and they could bring machine tools in from the United States at very good competitive rates if they chose to do it.

Representative **Richmond.** Are there rigid trade barriers on machine tools?

Mr. **Hague.** I would not say it is prohibitive, but it is just that it's discouraging.

Representative **Richmond.** Give me an example. Let's take a Cincinnati Milicron plastic molding machine which is probably the best thing in the world. What would the tariff be?

Mr. **Hague.** 30 to 35 percent, I believe.

Representative RICHMOND. All right. Now what if we were to import a Japanese molding machine, what would the tariff be in that case?

Mr. HAGUE. I think until the GATT provisions are fully enforced, they are 5 to 7 percent or something like that.

Representative RICHMOND. So our tariffs are less than the Japanese tariffs?

Mr. HAGUE. But that's machine tools, protecting the machine tool industry. The MTN—both Japan and the United States are signatories—is going to correct that. But in the meantime, the purchasing pattern clearly establishes decades of not buying American products gives us a fantastic job in America, by Americans, to overcome. I think Mr. Yawata is quite correct, the Japanese will buy a foreign product. There used to be this fiction that they were given orders by their government not to buy or support foreign products, but that is not true. The Japanese will, if they are sold in the way they like to be sold and are accustomed to being sold in their own market, and distance alone gives us a problem in doing that, but it's not an insurmountable problem.

Representative RICHMOND. Yet they seem to be able to do it in our market.

Mr. HAGUE. How well you state it. They have done to us and for us what we have just been kind of indifferent about doing to them for them, but I think there is complete equivalences in the ability to sell each other if we'll work at it. So there's a whole area here where American business has a responsibility that it hasn't fully fulfilled. We are feeling it in our own company. The upfront cost of getting enough sales people in place under enough American supervision to know our product lines is something that has slowed us down a good deal.

[The following letter of clarification from Yoshio Hatano, Minister, Embassy of Japan, was subsequently supplied for the record by Representative Richmond:]

EMBASSY OF JAPAN,
Washington, D.C., August 18, 1981.

Hon. FREDERICK W. RICHMOND,
Longworth House Office Building, Washington, D.C.

DEAR CONGRESSMAN RICHMOND: I am writing regarding the question and answer session between you and Mr. Hague on the Japanese tariff rate applied to plastic molding machines at the public hearing held by the Joint Economic Committee on June 23, 1981.

The dialogue was as follows:

Congressman Richmond: "Give me an example. Let's take a Cincinnati Milicron plastic molding machine which is probably the best thing in the world. What would the tariff be?"

Mr. Hague: "30 to 35 percent, I believe."

I would like to draw your attention to the fact that if the "Milicron plastic molding machine" is a type of "plastic molding machine", then it comes under tariff classification Number 84.59-1 of the Customs Tariff Schedule of Japan. The applicable tariff rate is 5.6 percent, instead of the 30 to 35 percent that Mr. Hague quoted.

The applicable Japanese tariff rates on machinery and mechanical appliances, in general, mostly range between 5 and 6 percent. No tariff rate in the range of 30-35 percent are being applied under these categories.

I hope that this information will help clarify the situation.

Sincerely yours,

YOSHIO HATANO, *Minister.*

Representative **Richmond**. Mr. Hague, with all the experience you've got, is it much more difficult for Americans to make investments in Japan than for Japanese to make investments in the United States?

Mr. **Hague**. Yes.

Representative **Richmond**. Can you expand on that?

Mr. **Hague**. Well, you're talking about America as a wide open geographical and attitudinal country and you're talking about Japan as an island nation that has developed sort of inward looking over centuries, so there's a resistance to having that foreign element come in, that foreign body come into the culture, and we have seen it work in a number of cases, where unless the technology was clearly identified and badly needed the investor did not get into Japan, and then he got in, in a joint venture posture with no more than, in the early years, no more than 50 percent ownership. So there were very rigid provisions which channeled our investment into the country. America is, in essence, wide open for foreign investment.

Representative **Richmond**. Yes; and right now, when I was in Japan I talked with both Toyota and Mitsubishi coming in on joint ventures with Chrysler here. They've got the capital, the managerial know-how, and I believe it would be a wonderful matter. I just hope something like that happens. Then, on the other hand, I just hope that American manufacturers are allowed to move into Japan with the same ease and welcome which we would welcome Japanese manufacturers coming to this country.

Mr. **Hague**. Of course, Chrysler moved into Mitsubishi and General Motors moved into Isusu, so we were allowed into those major industries, no question of it; but my own company was allowed in in those fields and levels of technology which we could provide in the 1950's and 1960's, but it was under very strict regulation. So there isn't a reciprocal attitude. I think maybe as far as legality, there is equivalent, but when you get into investment in Japan, your investment has to be accepted by the neighborhood and the industrial association as well as the Bank of Japan and the other people.

Representative **Richmond**. What do you mean?

Mr. **Hague**. Your investment must be accepted locally in the prefecture. If you—going to the Nemawashi that Mr. Yawata so clearly described here, the preparation really has to begin pretty well at the local provincial level—will they accept it—so that the preparation for the foreign investment is made—the need for it is made clear locally. Dow Chemical up in Michigan, for instance, wanted to go into the caustic soda program in the mid-1970's. It was stopped at the prefectural level in Japan. They were not going to accept it. The government itself and the whole industrial association were not supportive enough of the new technology which Dow sought to bring in. They preferred, in many cases, to keep it out so the local industry—the manufacturers could go to the new process on their own, which they have now done, but it was stopped at the prefectural level. So there are many barriers.

Representative **Richmond**. Japanese business is very much a partnership of government, business, and labor.

Mr. **Hague**. Yes, of course, and it will be for a long time yet to come. After all, geographically and in every other way—culturally, traditionally, and socially—Japan is a different country than America is and they are changing very readily, very quickly. It's amazing the changes that take place.

Representative RICHMOND. Until the Japanese realize that the greatest profit they can make is exporting their capital and some of their technicians to other countries like ours.

Mr. HAGUE. Of course.

Representative RICHMOND. I believe that is the future of Japan.

Mr. HAGUE. Yes. If Japan in any way were to be shortsighted or narrow visioned and work into an isolated position—their leadership in industry that would govern Japan I think clearly sees what their role has to be internationally. Getting that recognized down at the local levels is not an easy task.

Representative RICHMOND. Mr. Yawata, Mr. Hague was complaining about a U.S. tax on Americans who work abroad. Does the Japanese Government also tax your earnings here unduly or do you have more favorable tax treatment with your American earnings than Mr. Hague has with his Japanese earnings?

Mr. YAWATA. I do not think we have any difference. I think they are imposed equally on domestic or foreign investment.

Representative RICHMOND. No. Earnings.

Mr. YAWATA. Earnings?

Representative RICHMOND. In Mr. Hague's testimony he said that under the present tax setup it is very costly for Americans to work abroad.

Mr. YAWATA. From the American Government point of view?

Representative RICHMOND. Mr. Hague said our Government taxes Americans who work abroad unduly and I just wondered whether that is the same situation with Japanese who work here in the United States.

Mr. YAWATA. I do not know. I think they do, too, but I don't know.

Mr. HAGUE. Do you pay Japanese income tax on your income earned here in the United States?

Representative RICHMOND. Right now, Mr. Yawata, you're an American resident?

Mr. YAWATA. Not yet. I will be in about 1 month, but I am not an American resident yet.

Representative RICHMOND. Then you will receive a check every month and you will pay American income taxes. Will you also have to pay taxes in Japan?

Mr. YAWATA. I don't believe so. If there is a difference between income tax rates, then I may have to pay the difference to the Japanese Government, but I think the Japanese and American Governments have the dual taxation avoidance agreement that we mentioned. So we do not have to pay taxes twice.

Representative RICHMOND. Mr. Hague, how is that different from the setup we have?

Mr. HAGUE. There's an exclusion on tax paid—on a certain portion of tax that I paid in Japan on my Japanese salary in earnings to the Government of Japan. There's an exclusion from my American tax for a certain portion of the tax paid to Japan, but I had to pay to the IRS a full tax budren which I was responsible for as though I was a resident in the United States. I had to pay to my salary the exact precise tax that I would have had to pay if I were employed in the State of New York or in the State of Illinois or wherever. The problem grew because my company absorbed the tax paid to Japan and above the theoretical tax I had to pay to the United States. So there was dual taxation but, more importantly, every year's supplement or subsidy from my company to me that my company absorbed, that extra tax cost became income and it was then taxable in the succeeding year and it pyramids for the American abroad. So you're up to a fantastic amount of "income" which is no more than the added burden on taxation which your company has helped you with over the years.

Representative **Richmond**. Any further comments, Mr. Yawata or Mr. Hague?

Mr. **Yawata**. The income tax rate may be different in Japan from the one in the United States and if, in fact, the American income tax rate is higher for the bracket that Mr. Hague was in, then he may have to pay the difference to the American Government. That is because the Japanese Government does not charge as much tax as the U.S. Government, but I don't think he had to pay a dual tax. It must have been the same as if he were working here. There is a Japanese-United States Government tax agreement, and that should take care of that.

Representative **Richmond**. Mr. Yawata, I wish you luck and I wish more Japanese manufacturers would open up more factories in the United States. That's the real answer to the Japanese population problem, the Japanese capital problem and everything else. You've got too much population, too many engineers, too much capital. We want that in the United States.

Thank you very much and I know Senator Jepsen wants to keep the record open for 2 weeks until both of you supply any documentation you like.

The subcommittee stands adjourned.

[Whereupon, at 11:30 a.m., the subcommittee adjourned, subject to the call of the Chair.]

JAPANESE AND AMERICAN ECONOMIC POLICIES AND U.S. PRODUCTIVITY

TUESDAY, JULY 28, 1981

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON TRADE, PRODUCTIVITY,
AND ECONOMIC GROWTH
OF THE JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:05 a.m., in room 5110, Dirksen Senate Office Building, Hon. Paula Hawkins (member of the Joint Economic Committee) presiding.

Present: Senators Abdnor, Hawkins, and Proxmire; and Representative Richmond.

Also present: Charles H. Bradford and Louis C. Krauthoff II, assistant directors; Douglas N. Ross, Robert Premus, Richard Vedder, and William R. Buechner, professional staff members; and Betty Maddox, assistant director for administration.

Senator HAWKINS. It's a great pleasure to welcome this most distinguished and knowledgeable panel today. Mr. Tanaka is in private practice representing numerous Japanese and American companies and is former president of the Japan-America Society. Mr. Bradford is vice president of Merrill Lynch; and Mr. Howe is vice president and group executive of the Machine Tool Systems Group, Litton Industries and vice chairman of the National Machine Tool Builders' Association.

We have asked these distinguished gentlemen to assist this subcommittee and Congress in developing economic policy initiatives that will stimulate long-term United States economic growth. We want to look at what might be called Japanese industrial policy and ask, what kind of Japanese economic policy measures with respect to taxation and capital formation, government regulations, business-government-labor relations, research and innovations, and others can be intelligently and sensitively applied to the United States.

We want suggestions for Government policy that can positively assist the United States in meeting its necessary regulatory goals while also encouraging new investment in economic growth.

Without objection, I would like to insert my opening statement into the hearing record at this point.

[The opening statement of Hon. Paula Hawkins follows:]

OPENING STATEMENT OF SENATOR HAWKINS, PRESIDING

I am pleased to have the opportunity to present my views concerning the potential growth of trade with Japan. As the U.S. Senator from the State of

Florida, I would like to offer my observations and recommendations for the expansion of Florida citrus products into ever growing Japanese markets.

Japan's recent limited liberalization of trade restrictions has created significant benefits for both countries. In the past decade, Japan has become an increasing market for fresh grapefruit from Florida. Since liberalization began in 1971, citrus trade has steadily risen culminating in a record 6.1 million cartons of fresh fruit shipments to Japan. This figure represents approximately 20 percent of Florida's fresh fruit shipments.

However, some of the outdated quotas and tariffs remain intact and continue to impede the full benefits both countries could realize if there were fewer restrictions. For many years Japan has maintained constraints on citrus imports from abroad. For example, the Japanese have imposed a 40 percent ad valorem tariff on fresh grapefruit. As a result of the Multilateral Trade Negotiations, this tariff will be reduced to 25 percent during Florida's shipping season; however, because of the gradual 8 year phase in, the real effect of this reduction will not be fully realized until 1986. Despite the progress in reducing this tariff, I must question the validity of imposing a quota against a product which is not produced in that country.

In addition, the Japanese have implemented a quota system on fresh oranges which, in effect, places an embargo on Florida exports. Despite the quota liberalization resulting from the Strauss/Ushiba agreements in January 1977 and the Multilateral Trade Negotiations, such quotas are still very restrictive. Currently, licenses are granted by the Japanese Government to Japanese importers and until recently, only to a very small number of importers.

Also, one half of all orange quotas are issued during the June through August period, a time when Florida does not produce fresh oranges. And, during the Strauss/Ushiba agreements in 1977, the Japanese agreed, in writing, to modify this manner of issuing licenses. To date this promise has not been carried out.

Action should be taken to revamp the current license system by prohibiting the selling of licenses at inflated prices and to provide penalties for nonuse of quotas unless valid reasons are given.

In addition to trade restrictions placed upon foreign citrus the Japanese have maintained a very small quota system on frozen citrus concentrate. Although the quotas were enlarged slightly as a result of the Multilateral Trade Negotiations, they remain very restrictive. In fact, the total of the recently increased quotas, which are not fully effective until 1984, amounts to only 4 days of Florida production.

Therefore, I believe we must further our efforts to negotiate a liberalization of the quota system presently in place for frozen citrus concentrate. We must ensure that the quotas for processed products are allocated to independent business entities as well as the Japanese citrus industry.

Further, such quotas should not be restricted to blending purposes only. If the Japanese consumer was offered the same processed citrus products that are available in the United States, the Japanese market for such products could expand without interfering with the current Japanese citrus industry.

And, given the extremely large trade deficit between the United States and Japan, the awarding of additional quotas should be limited to U.S. citrus products.

I am optimistic that future trade negotiations between the United States and Japan will prove beneficial to both countries. The United States is strongly committed to free trade as reflected in several recent international trade decisions. Therefore, I believe that as a fully developed and independent country with longstanding economic ties to the United States, Japan has an obligation and responsibility to substantially reduce or eliminate such restrictive trade barriers on America's citrus products.

Senator HAWKINS. Today's hearing is the second in a series of deliberations. Congressman Richmond is on my left. I would like to announce that, as we all know, the Senate is in session and we could be disrupted at any time for a rollcall vote. Therefore, I look forward to your testimony, gentlemen. We will take you in the order that you were introduced and in the interest of time, which is what we're working against here today, you may be able to condense your oral testimony to about 10 minutes, and then we'll have questions for each of you.

Mr. Tanaka, will lead off as our first witness.

STATEMENT OF H. WILLIAM TANAKA, MEMBER, LAW FIRM OF TANAKA, WALDERS & RITGER, WASHINGTON, D.C.

Mr. TANAKA. Senator Hawkins, for the record, my name is H. William Tanaka, and I am a member of the Washington law firm of Tanaka, Walders & Ritger. Our firm has practiced in the area of international trade and investment involving the United States and Japan. This statement is submitted in response to the subcommittee's invitation. The views expressed are my own and do not necessarily represent the opinions or positions of the firm or any of its clients.

I appreciate this opportunity to present, in the context of the subcommittee's study of Japanese and American Economic Policies and United States Productivity, some thoughts on the differences in the approaches of Japanese industry and American industry to Government regulation, as well as on related matters pertinent to your task of developing economic and regulatory policy initiatives to stimulate long-term U.S. economic growth. My more detailed observations are in my prepared statement, which I am submitting for the record. I will summarize them briefly.

Senator HAWKINS. Your prepared statement will be printed in the hearing record.

Mr. TANAKA. The differences between the respective approaches of United States and Japanese industry to Government regulation reflect the differences between the general industry-government relationship in the two countries. In the United States, that relationship is essentially an adversarial one, in keeping with our checks-and-balances governmental system and our common-law heritage. Industry, as one of many interest groups, is expected to, and does, espouse its own narrow interests rather than devising and pressing for disinterested policies broadly promotive of the common good. Government regulation normally takes the form of compulsory legislation, supported by voluminous regulations, imposing obligations on industry and others which are enforced by a system of penalties for noncompliance. Since compliance often entails considerable expense, the regulations and their enforcement are frequently opposed by industry.

In Japan, Government and the business community tend to interact and communicate far more readily than in the United States, to the perceived mutual benefit of both industry and the nation.

The Japanese industry-government relationship finds its clearest expression in the practice of "administrative guidance," through which administrative agencies seek to persuade private parties to cooperate voluntarily in achieving agreed-upon policy objectives. Although administrative guidance is less direct than legal procedures as a means of achieving goals, it may be more effective. Policies can be implemented practically overnight, and express statutory authority for the administrative guidance is not deemed essential.

Thus, in the United States, industry's approach to government regulation tends to be reactive, something to be resisted as long as possible and complied with only to the minimum extent necessary. In Japan industry's approach to government regulations tends to be interactive, with the regulatory process being viewed as a function of the search for consensus which characterizes all activities in Japan where the participants perceive a common interest. The Japanese business leader generally approaches the issue of regulation with a concern for the national interest as part of his business ethic and therefore his point of departure. The national interest, whether implicitly or explicitly raised, is frequently used as a shibboleth or a slogan to catalyze a consensus which will be more or less consistent with overall government policies. Invoking the national interest, whether pretended or real, tends to screen out ad hoc programs and solutions inconsistent with the shaping of generally coherent overall national policies.

More often than not the Japanese business executive becomes a willing participant in a dialog with government and his industry counterparts in an attempt to bring a given problem into sharper focus. He thus reduces the costs to his business of regulation, both by helping shape the solution and by avoiding the expenses of a protracted fight, for which there are inadequate mechanisms in Japan in any event.

The process of extended dialog as a prelude to agreement on a regulatory course of action is known in Japan as *nemawashi*, or "root-trimming," a reference to the prudent gardener's cutting of roots well in advance of attempting to transplant a bush or a tree in order to avoid a shock to its system when the move occurs. The result in both cases is that advance planning and action ease the transition. This technique of achieving consensus before imposing regulations reduces the burdens of enforcement—"enforcement" being a word which in fact does not exist in the Japanese language except in a stilted technical sense.

The differences between industry's approach to regulation in the United States and Japan is also shaped by differences in basic management philosophy and goals in the two countries. In general, Japanese industry is consumer-oriented; it designs products to meet consumer needs and tastes, and it designs quality into both the product itself and the facilities for its production. Management looks toward consumer satisfaction which translates into longer term growth in sales and increasing market share, even at the expense of near-term profits. This long-term view is also reflected in Japan's internal labor market, founded on the lifetime employment system, which minimizes personnel turnover. Management's long-range perspective also makes it easier for it to make continuous corrections in design and production defects, thereby minimizing the need for regulation. And when regulation does take place, the ongoing dialog with the government gives advance warning, making adjustment and conformity easier.

In contrast, the goals and outlook of most U.S. management are shorter term than those prevalent in Japan. U.S. industry tends to be product-oriented rather than consumer-oriented. Constant employee turnover makes it uneconomical to train personnel on a systematic basis. As a result of its product orientation, U.S. industry tends to be laggard in adapting products to changing consumer desires. Too often it must be compelled, by regulation, either to retrofit products to meet new minimum standards or to correct defects in products already distributed. Thus, we have ad hoc reaction to regulations, rather than interactive redesigning of products and facilities which may avoid regulation altogether.

Inflation appears to be both a cause and an effect of this type of short-term thinking. Short-term investments are preferred over more risky long-term investments, whose cost-reduction benefits are deferred. Workers are often laid off to achieve near-term cost reduction, aggravating employee insecurity and a high employee turnover rate.

An additionally exacerbating factor reflecting the short-term approach is the "de-skilling" of workers; that is, the process of systematic reduction in the skill level required for a particular job, paralleled by management's unwillingness to take responsibility for training workers to fill higher skill level jobs, partly because the cost of training may not be recouped due to rapid employee turnover. This is a particularly serious problem in the vital machine-tool industry, where in-house training is pitifully inadequate and the supply of skilled machinists is rapidly dwindling.

The American system of regulation of industry which I have just described entails excessive costs which, on balance, tend to worsen inefficiencies and thereby fuel inflation. Too often American business seeks a legal solution, aimed at fighting a regulatory problem, when an engineering solution would more quickly and cheaply solve the problem and at the same time improve the product. This is demonstrated in a number of examples contrasting American and Japanese regulatory actions which I have outlined in my formal statement, including industry reactions to regulations governing radiation levels in the television industry and automobile emission and safety standards. Suffice it to say here that Japanese companies tend more often to view regulatory controverises in these areas as engineering problems, while U.S. industry generally adopts a legalistic approach. The resulting differences in costs, in the quality of government-industry relations, and in consumer satisfaction may be considerable.

Senator Hawkins, it is obvious that the regulatory system in Japan and the system in the United States each has its own strengths and weaknesses, and each has features that would be difficult to transplant into alien soil. Nevertheless, I do have some recommendations for actions, based on my comparative analysis, which I believe would contribute significantly to a restructuring of the organizational dynamics of production and distribution as well as to a more cost-efficient relationship between Government and industry in the United States.

First, I would recommend that the Congress and the Government as a whole articulate their concern over the need to transform the traditional adversarial relationships between Government and industry, and industry and labor, into a more cooperative enterprise motivated by shared longer term economic objectives. We can begin by making legislative and regulatory changes designed to shift from a system of regulation based upon prohibitions enforced by penalties to one based on more dynamic or flexible use of incentives and disincentives to encourage performance in disinflationary fulfillment of consumer goals.

Second, we must pursue and strengthen efforts to simplify, reduce and, where possible, eliminate excessive or unnecessary regulatory burdens. I am speaking here not only of unsolicited Government intrusions into the marketplace, but the less-noted phenomenon of solicited Government intervention as well. In my experience in the international trade arena I have seen import relief too often used in a manner discouraging or preventing disinvestment in declining low-technology and labor-intensive industries. In contrast, the Japanese, with the exception of agriculture, tend relatively more systematically to allow their "sunset" industries to expire if they cannot compete, and accord protection to "sunrise," knowledge—and information—oriented industries.

Third, we must search for ways to lengthen the perspective of both regulators and management in this country so that short-term performance criteria will give way to actions geared to the long-term welfare of the company, the industry and the Nation. In my judgment, one of the more important ways of changing the short-term perspective of U.S. management is to imbue it with a new vision of its responsibilities toward training workers. If U.S. management were to reverse its long indifference to its in-house training capabilities, a longer term attitude would necessarily result. The investment in education would motivate management to address the job-security concerns of its skilled employees. The overall rise in skill levels would make these employees more productive and better able to address quality control problems, and would make management more willing to listen to their solutions. Job satisfaction and quality of performance would increase; the employee turnover would decrease. The quality of human input, including the relational aspects, is the single largest factor in productivity, and productivity is the key to growth and international competitiveness.

Education is the key: Practical training of workers; retraining where necessary; and advanced training of engineers. This is done routinely in Japan. It can also be done here. This type of in-house training could be stimulated by an investment tax credit which would at least serve to offset the cost of the company's investment.

I believe these are measures which will improve significantly our productivity and the climate necessary for further advances. Equally important, I believe they are well within our capability to achieve.

That completes my testimony, Senator. I will be pleased to try to answer any questions which you or your colleagues may have.

Senator HAWKINS. Thank you, Mr. Tanaka.

[The prepared statement of Mr. Tanaka follows:]

PREPARED
STATEMENT OF H. WILLIAM TANAKA
BEFORE THE
SUBCOMMITTEE ON TRADE, PRODUCTIVITY AND ECONOMIC GROWTH
OF THE JOINT ECONOMIC COMMITTEE

July 28, 1981

Senator Hawkins, I am H. William Tanaka, a member of the Washington law firm of Tanaka Walders and Ritger. Our firm has practiced in the area of international trade and investment involving the United States and Japan. This statement is submitted in response to the Committee's invitation. The views expressed are my own and do not necessarily represent the opinions or positions of the firm or any of its clients.*

I appreciate this opportunity to present, in the context of the Subcommitte's study of Japanese and American Economic Policies and Productivity, some thoughts on the differences between Japanese industry's and American industry's approach to government regulation. As a lawyer practicing in the United States in the field of international trade and antitrust law, most of my experience with government regulation has been in international trade regulation, antitrust, and what have been called "social" regulations -- that is, regulations involving the environment, health, safety and similar considerations. I have not been extensively involved with regulations governing industries perceived as enjoying a natural monopoly, such as public power, transportation and communications -- the last two of course being industries which are now experiencing deregulation in this country. Although I will focus on the types of regulation with which I am most familiar, I believe my remarks will be generally true of the other forms of regulations as well.

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* I am registered with the Department of Justice as an agent of a number of foreign principals.

As I pursue the topic of comparative industry responses to government regulation, I would also like to share with you some observations, based on my experience with corporations and governments in this country and Japan, which may not be directly relevant to the subject of regulation. They are, however, pertinent to your broader task of developing economic and regulatory policy initiatives to stimulate long-term U.S. economic growth.

I. The Regulatory Setting: Government-Industry Relations in the United States and Japan

The differences between the respective approaches of United States and Japanese industry to government regulation reflect the differences between the general industry-government relationship in the two countries.

A. United States: "Trial by battle". In the United States that relationship is, at bottom, an adversarial one. This is hardly surprising, in light of the political philosophy on which our governmental system was formulated and is still based. The individual is regarded as paramount; a system of checks and balances within the government, and between the government and various sectors of society, is maintained to keep a necessary but potentially oppressive government within bounds.

The hostility between business and government in this country is not new. According to a study by David Vogel, this attitude has been consistent over the last 125 years, with its highest peaks reached in the 1920's and 1950's when corporate autonomy was greatest. Except when self-interest dictates otherwise, businessmen insist that economic decisions should be governed by the discipline of the marketplace. Since government operations are not subject to market constraints, they are invariably inefficient, so they say.

The antagonistic government-industry relationship is also fostered by our common-law legal system and some of its tenets. Dispute settlement in our system is an adversary process. Moreover, one of the common-law's cardinal rules in the corporate sphere is that the primary duty of corporate management is to produce a profit for the shareholders, not to promote some abstract concept of the "common good" to which management and the government might jointly subscribe.

Inherent in the adversary process is the goal of winning. Accommodation and compromise are presumed to have been exhausted, and so "Against" becomes the only legal posture possible. This polarizes parties so that they fail to perceive common interests. Even if they do see their common ground, the system often prevents recognition of it because the parties are cast in adversarial roles. We profess that out of this clash of self-interests will emerge truth in the courtroom and good policy in government. Of course, the system does not necessarily yield the correct solution, the best solution or the just solution -- it yields only the winning solution.[2]

As a result of these traditional concepts and forces, the United States government typically formulates domestic policy goals under pressures, often conflicting, from a wide array of interest groups. Industry is only one of these, and is not always unified itself. Since each group knows it will be competing with other interest groups, each tends to emphasize its own narrow interest rather than devising and pressing for a disinterested approach broadly promotive of the national interest.

Once this combative process has produced a policy decision, this is followed, in the normal course of events, by passage of a law and the adoption of voluminous regulations imposing obligations on industry and others which are enforced by a system of penalties for non-compliance. But since compliance often entails considerable expense, the regulations and their enforcement are frequently opposed by industry.

Small wonder, then, that there is little concerted, consistent and continuing collaboration between industry and government to formulate either national goals or solutions to perceived problems. "What's good for the United States is good for General Motors" has never been the accepted wisdom in this country.

B. Japan: Interaction. In Japan, the industry-government relationship is quite different, as this Subcommittee of course knows. While the concept of "Japan, Inc." is vastly overblown, it is nevertheless true that government and the business community interact and communicate far more readily in Japan than in the United States, more often than not, to the mutual benefit of Japanese industry and the Japanese nation. A U.S. Commerce Department publication sums up the difference by stating that while

> U.S. business has inherently distrusted or been skeptical of governmental authority and has striven to restrain the use of political power . . . Japanese businessmen take it for granted that there will be a continuous dialogue between business leaders and government officials, and that neither will make major policy decisions or undertake major projects without consulting each other.[3]

The author traces this sentiment to Confucian precepts, carried forward through the samurai warrior's code and into the business life and civil service of Japan, under which the long-term interests of the state, which embodies the largest group in a group-oriented society, are given a priority equal to, and at times exceeding, the immediate needs of the individual. This government-business interaction finds its expression in "consensus more than directives, shared objectives as much as authority, effective communications more than controls, inducements rather than commands . . ." (emphasis added).[4] I must hasten to point out that profit remains the primary goal of Japanese companies, and the concept of a legally-imposed "social responsibility" for corporations has been resisted as strenuously in Japan as it has been here.[5]

Interestingly for our present purposes, this interactive relationship between business and government in Japan is not the inevitable and unique result of Japanese history and tradition. As Peter Drucker has pointed out in a recent article in the Harvard Business Review,[6] it is the result of a conscious choice on the part of Japanese business leaders and their counterparts in government, during the rebuilding of Japan after World War II, to adopt the views of one 19th century Japanese entrepreneur and business philosopher over those of another. One, an entrepreneur, banker and business philosopher named Eiichi Shibusawa, had urged business leaders to take responsibility for the national interest and for enmeshing conflict in a web of shared interests. This philosophy had been overshadowed for decades by the contrary views and example of Mitsubishi's founder, Yataro Iwasaki, who is regarded as the leading figure in Japanese business history. In the aftermath of World War II, however, it was recognized that a rapidly-changing, pluralistic society would be rife with conflicts which could be controlled only by subordinating them to the national interest and shared concerns. Thus one strand of Japanese tradition replaced another as the prevailing philosophy in the business-government relationship.

1. Regulation by admonition. This relationship finds its clearest expression in the Japanese practice of "administrative guidance." This has been defined as "the action by which administrative agencies influence parties through non-authoritative, as opposed to legally coercive, means to cooperate voluntarily with the agencies' guidance toward the formation of the social order." A ministry conducting administrative guidance may do so by issuing "directions", "requests", "warnings", "suggestions" or "encouragement". Guidance may cover an entire industry, which is usually styled "regulatory" guidance, or it may be directed at individual firms, often at their request, in which case it is "advisory" guidance.[7] At least in theory, the object of the ministry's attention is free to comply or not as it wishes, but the pressures to comply can sometimes go well beyond the philosophical ones to which I have just alluded.

Although administrative guidance is less direct than resort to legal procedures to achieve a goal, it may often be far more effective. Policies can be implemented practically overnight, and express statutory authority for the administrative guidance is not deemed essential. Therefore guidance may reach beyond the literal extent of the law.

2. A lean bureacracy. Another difference between the government-industry relationship in Japan and in the United States is worth mentioning. Since 1969 there has been a cap of slightly over 500,000 on the number of civil servants in

Japan. Despite the growth in complexity of society and the laws to be administered, somehow the Japanese have managed to keep the size of the government in check. Basically this is possible because of the business ethic of promoting the national interest, which means that bureaucrats don't spend most of their time as policemen, but rather as public policy coordinators and formulators. Also, local voluntary associations take on some responsibilities. For example, if garbage collection is changed from Monday to Thursday, the local "Neighborhood Action" group will take upon itself the responsibility for notifying the individuals affected.

II. The Regulatory Process in Japan and the United States

A comparative study of regulation in the U.S. and in Japan must of course begin with an understanding that regulation is not a system; it is a non-market response to a situation which is perceived to be a public problem.[8] Often the public sentiment is broadly based and ill focused; occasionally it is formed only by a narrow segment of the public and is very highly focused. Regulation occurs when the public turns to the government and insists on control, thereby expressing a basic distrust of the market solution. This fundamental truth is the same in both the U.S. and Japan.

A. Japan: A search for consensus. The difference between industry's approach to regulation in the United States and in Japan is a function of the government-industry relationships which I have described. In our country, industry's approach tends to be reactive, while in Japan it tends to be interactive. The American businessman tends to regard governmental regulation of almost any kind as something imposed from above, contrary to industry's real interests, and therefore to be resisted as long as possible and complied with only to the minimum extent necessary -- unless, of course, the regulation is solicited by the businessman in furtherance of his company's interests.

The Japanese, on the other hand, tend to view the regulatory process as a function of the search for consensus which characterizes all activities in Japan where the participants perceive a common interest. There is intense dialogue among the interested societal sectors, not only about the desirability of the regulation but its form and who should bear the cost. Further, in contrast to the United States, most sectors of Japanese society participate in the process.

This does not mean, of course, that Japanese businessmen fail to regard their government as often meddlesome and sometimes overbearing. Far from it. The crucial difference between the responses of businessmen in the two countries rests in the underlying attitudes just mentioned. The Japanese business leader approaches the issue of regulation with a concern for the national interest as part of his business ethic and therefore his point of departure. Accordingly, as soon as the problem becomes a serious issue he is likely to enter into a dialogue with government and his industry counterparts in an attempt to bring the problem into sharper focus. He proceeds from an assumption that there is a common interest, and even if his business winds up paying some costs, those costs will be less if he helps shape the solution. They will be less not only because the resulting regulation will more likely be more palatable; at least as important, he will avoid the expense of a protracted fight, for which there are inadequate mechanisms in Japan in any event. Moreover, when society as a whole is seen to benefit, due in part to his efforts and concessions, his business will be held in higher esteem.

This is not self-sacrifice. It is a trade-off between short-term losses, which are probably inevitable anyway, and long-term gains. As a result of this interactive approach, in combination with the government's willingness to abide by informal solutions to regulatory problems, both the monetary and the psychic costs of the regulatory process, as well as the time expended, are much less in Japan than in the United States.

To put this in more concrete terms, when the outlines of a problem begin to develop, the cry will arise in both the U.S. and Japan that "something should be done." With characteristic decisiveness, Americans will immediately organize a special-interest lobbying effort, propose a law, promulgate a regulation, or all three. In Japan, the first reaction is to set up a consultative committee to poll the business community and the sectors of society most likely to be affected by any government action. Several hundred of these committees have been established, the most recent being to develop biotechnology guidelines. The ensuing dialogue between government, industry and the concerned public often becomes extremely heated, but only rarely does this controversy become a matter of general public knowledge. The talking phase may last from a few weeks to a few years, but the government almost never takes precipitous, peremptory action because it recognizes that the purpose of the debate is to reach a broad consensus on the general direction of policy. The purpose is seldom the mere delay which sometimes seems to motivate American industry's tactics in the regulatory colloquy.

The Japanese have a word for this process, nemawashi, or "root-trimming." Lewis Austin described it in his book, Saints & Samurai:

> Just as, before a tree or a shrub is transplanted the roots must be trimmed back to a convenient length well before the actual move takes place, so the shock of changing policy in organizations must be cushioned by a long and careful period of preparation . . ..
>
> What is wanted is to prepare the proper climate of opinion so that when a new policy is voiced openly it will receive not the shock of surprised ignorance and threatened security but the favorable reception of those who have come to see it as their own idea. Everyone who might be concerned must be sounded in advance, without an actual commit-

> ment being made either by suggestor or suggestee. The dangers of disharmonious conflict, of injured role-pride, of involuntary exclusion, are eliminated as much as possible by making all preliminary consultation nonbinding, extensive, long-lasting, and discreet.[9]

Once a general direction is settled on, the speed with which government and industry in Japan can move to pursue that course is impressive. At times, industry will resist a particular means of implementation, but having participated in the fundamental decision on the policy direction, its action is usually understood by all as a relatively small dispute among co-participants in a joint endeavor.

I must take a moment here to dispel the misconception that the consensus orientation and the concern for the collectivity diminish in any way the competitive business environment. Members of an industry fight each other doggedly. Japanese Government fears of "excessive competition" are founded on a history of acrimonious inter-company feuds. The loss of tenths of a percent in market share may be considered a disgrace for the losing company. Competition in Japan is thriving. The competitors know, however, that they must live together on their crowded island home and therefore must identify their common interests if the social and economic foundation of their society is to be maintained.

1. Informality and flexibility. The Japanese Government uses a variety of methods to implement new policies. On occasions of fundamental policy innovations, such as the environmental

initiatives of the mid-1960's, a spate of laws and regulations may issue. Though in many cases similar at first glance to U.S. laws, and in fact often patterned after them, the Japanese laws differ in a fundamental respect. There is often no clearly-defined enforcement mechanism. Indeed, there is no satisfactory Japanese word for "enforcement,"[10] a reflection of the aversion to direct compulsion characteristic of Japanese society. The preference is for government to work by exhortation and administrative guidance. This extends even to laws which clearly prohibit or mandate particular courses of action.

One of the advantages of this lack of precision and reliance on informal solutions is that it avoids the "rough justice" meted out by U.S. regulatory agencies when they issue mandatory regulations of general applicability. Most regulatory requirements, once crystallized in the Federal Register, do not, and as a practical matter cannot, take into account the myriad individual differences in situations. As Peter Schuck said of the "rough justice" approach in the National Journal,

> its inevitable result is that people or firms in radically dissimilar circumstances are treated as if they were alike, producing competitive distortions and gross inequities. The use of the 'base year' concept in price regulation, for example, ensures that some firms will enjoy substantial pricing latitude while others will be severely constrained depending upon how each firm happened to fare in the base year and how typical that year was for each. Similarly, the notion that the small firm is simply a large firm

> in miniature ignores the very real differences between them with respect to mode of operations, access to capital, accounting systems and many other aspects of economic activity.[11]

2. Management philosophy: The long-term view. The differences between industry's approach to regulation in the United States and Japan is also shaped by differences in basic management philosophy and goals in the two countries. In general, Japanese industry is consumer oriented. It designs products to meet consumer needs and tastes, and it designs quality into both the product itself and the facilities for its production. Management looks toward customer satisfaction which will translate into long-term growth in sales and increasing market share, even at the expense of near-term profits.

This long-term view is also reflected in Japan's internal labor market, grounded on the lifetime employment system, which minimizes personnel turnover. Given employee stability, management invests considerable time and effort in training employees throughout their careers, beginning with their recruitment right out of high school or the university.

3. Anticipation of problems. One result of this long-term management orientation is less need of regulations intended either to force adaptation of products to newly-perceived consumer needs, or to correct defectively-designed or defectively-manufactured goods which may be hazardous to health or safety. Moreover, when the Japanese Government does decide to regulate, industry tends to be aware of the governmental concerns well in

advance of the concrete regulatory proposals because of the continuous government-industry dialogue. Management may not always agree with those concerns, but when the winds of change are blowing, it helps to have advance warning.

The resolution of the mandatory retirement problem exemplifies this. As the average age of population rises, many workers began to feel that they were being forced to retire prematurely. In contrast to the U.S., where laws had to be passed postponing retirement or prohibiting mandatory retirement, the dialogue between government and business in Japan resulted in the large companies raising the mandatory retirement age on their own, without government pressure. They anticipated the issue, and dealt with it before the demand for regulation arose.

Of course, the Japanese are not prescient. The environmental fervor caught them by surprise. But that is the exception, and even there, as I shall discuss later, the consensus orientation achieved reform at a breathtaking pace.

B. The United States: The reactive response, and some causal factors. As noted earlier, industry's approach to regulation in the United States tends to be reactive and antagonistic, conditioned by the adversarial bias of our society, in contrast to the interactive, consensus-oriented approach of the Japanese. The American approach is reinforced by other attitudes and circumstances endemic in our economy.

1. Management philosophy: The short-term view. For example, in contrast to the long-term Japanese management philosophy, the goals and outlook of most U.S. management are shorter term. U.S. industry tends to be product oriented -- "we sell what we make" -- rather than consumer oriented. Once a market niche has been found, the sale of the product "as is" is more important than the tailoring of that product to meet what the consumer or the customer wants. Actions which might lead to long-term growth and increasing market share are often subordinated to those more likely to bring about profits in this fiscal quarter or the next. Fairly rapid employee turnover makes it uneconomical to train personnel on a systematic basis. This "external" labor market inhibits the progress of U.S. industry down the learning curve.

One result of this set of attitudes and circumstances is that U.S. industry tends to be laggard in adapting products to changing consumer desires. Too often it must be compelled, by regulation, either to retrofit products in order to meet new minimum standards or to correct defects in products already distributed. Thus we have ad hoc reactions to regulations, rather than interactive redesigning of products and facilities which may avoid regulation altogether.

2. Inflation leads to labor troubles. The tendency toward short-term thinking is fostered and reinforced by such structural problems as inflation. Inflation biases

management towards conservative short-term investments and away from more risky long-term investments whose cost-reduction benefits are deferred. At the same time, the preferred means of achieving near-term cost reduction tends to be to lay off workers. This accounts at least in part for employee insecurity and a high employee turnover rate. Labor unions raise their wage demands, sometimes going out on strike, to offset their insecurity about their jobs. Strikes in turn fuel inflation by raising costs dramatically, far more than is commonly believed. A 1979 article in the Harvard Business Review[12] reports that $200 to $300 per man-day lost from strikes is not unusual when all the hidden and indirect costs are added up.

When one considers that in 1978 the U.S. lost about 39,000,000 man-days to strikes while Japan lost only 1,358,000,[13] it is no wonder that Japanese inflation has averaged less than half the U.S. rate over the last three years. I am reminded of an amusing but meaningful vignette on my trip to Japan last spring. A young lady behind an airline ticket counter, dutifully processing customers, was wearing a red arm band which proclaimed, in effect, "On Strike to Protest Oppressive Management Practices."

3. Unit labor costs and productivity. All of this is reflected in a decidedly different trend in the two countries in the pattern of unit labor costs, which measures the combined effect of productivity and compensation. For instance, in the

three years 1978 through 1980 unit labor costs in the United States manufacturing sector increased annually at the rate of 7.3%, 8.6% and 11.0%, respectively. But in Japan's manufacturing sector unit labor costs actually declined in 1978 and 1979 and increased by a modest 2.7% in 1980.[14]

An important part of the decline in U.S. productivity is the short pay-back criterion used by U.S. management in determining whether or not to make capital expenditures for modernization and replacement. In 1969, 20% of manufacturing companies required that such expenditures pay for themselves within three years. A more recent survey by McGraw-Hill showed that by 1979, 25% of the companies had such a requirement.[15]

As Burton Malkiel said in the Harvard Business Review,

> the apparent unwillingness of our country to commit resources to the future is not the result of "diminished animal spirits," to use Lord Keynes's term. Nor is there necessarily some basic failing in Yankee ingenuity. Rather the problem seems to involve sharply increased risk premiums demanded by investors and attendant low equity prices. This increases the cost of capital funds to companies and reduces the amounts committed to long-term projects.[16]

4. Workers' skills declining. One structural problem reflecting the short-term approach is the "de-skilling" of workers, that is, the process of systematic reduction in the skill level required for a particular job due, for example, to the introduction of mass-production techniques. The term also encompasses management's unwillingness to take responsibility for training workers to fill higher skill

level jobs, in part because the cost of training may not be recouped due to rapid employee turnover. As a result of these two forces, entry level workers are not trained to become skilled workers, and what skilled workers exist are passed about like shuttlecocks to the highest bidder.

This is an especially graphic problem in the machine-tool industry, the cornerstone of American manufacturing. The Department of Labor estimates that there will be 31,000 new skilled labor openings for machinists and machine operators annually until 1990, but only 2,300 workers will qualify for these jobs.[17] In part, this severe shortage is due to the entry-level barriers. A diemaker apprentice must complete 8,000 hours, or some four years, of shop work at $4.00 per hour to become a journeyman, plus 600 hours of vocational training. The companies who employ these people have created no incentives to go through the rigorous training. Most tend simply to hire qualified workers away from other companies and consequently their in-house training is pitifully inadequate. Cincinatti Milacron, the largest machine-tool maker and one of the few industrial robot manufacturers in the United States, will produce only ten journeymen from its apprentice program this year.

Without these skilled workers, the machine tool industry will fall further and further behind in filling orders. How can American industry modernize if the new production equipment cannot be obtained?

Machinists are not the only group of skilled workers in short supply -- the problem is endemic to blue-collar labor. The de-skilling of the work force is an especially acute problem because high-technology, information-oriented industry, the competitive industry of the future, will demand skilled workers and will have little use for unskilled employees.

5. The cost of regulation: Part of a vicious circle. The high costs entailed in government regulation of industry exacerbate these problems, worsening inefficiencies and thereby fueling inflation. Excessive or inappropriate regulation is sometimes to blame. And sometimes the side effects are quite unexpected. Even otherwise benign labor regulations have had the unintended effect of hardening the division between management and labor, creating adversarial relations that increase the likelihood of strikes and further de-skilling of the work force.

But government is not always the culprit. One reason the costs of enforcing regulations are very high is industry's built-in adversarial resistance to compliance. For example, the high incidence of U.S. Government-compelled recalls of U.S.-built cars as a percentage of new car registrations -- 47.4% for domestic cars as compared to 16.3% for Japanese imports in the seven-year period from 1974 through 1980[18] -- reflects problems in either design or production quality. These problems, in turn, are attributable in part to the American automakers' practice of offering a multiplicity of model lines and varying options in each line. But the high recall rate also reflects industry's attitudinal approach to regulation. Mark Green, a persistent critic of General Motors, has been quoted as saying that "When government insists on certain regulations, Japan hires engineers, and GM hires lawyers." [19]

The experience of the Firestone 500 tire recall is illustrative. In 1978, Firestone engaged in a protracted and expensive battle with NHTSA over the safety of its "500" model radials tires. Firestone lost, at a cost estimated to be over $200 million. But the damage to its reputation was larger still. As described in the Legal Times of Washington,

> [Firestone] elected to treat the problem strictly as a legal headache; its early tactics involved litigation, delays, contentious foot-dragging and appeal . . . . What was Firestone trying to conceal? Why was [its counsel] so concerned?[20]

Can U.S. business continue to afford an increasingly cost-inefficient and inflationary adversary system? Even when it wins, it loses. Again using a 1978 example, Ford fought tooth-and-claw against the criminal charges brought against it in the Pinto litigation. It won. It also succeeded in having a $125 million punitive damage award reduced to $3.5 million. But there are those who would say that in the process Ford lost much of its credibility as a company which regards the safety of its passengers as a top priority.

6. Private litigants and public policy. The Japanese have an advantage in flexibility in such regulatory fields

as antitrust, in which much of our own enforcement is left to private and State litigation. In Japan, it is impossible to bring a private antitrust proceeding without prior action in the case by the Fair Trade Commission. This leaves the shape of antitrust policy in the hands of administrators.

In our system, of course, there are many more private than public antitrust proceedings. While this does not hamper (and indeed it helps) administrators in promulgating new antitrust initiatives, it hampers them when, as is currently the case, the administrators decide that past initiatives have been unwise and no longer should be purused. For example, the Justice Department decided a long time ago that the Robinson-Patman Act was basically inimical to sound antitrust policy, and it has not filed a suit under that Act in decades. The Federal Trade Commission seems to be slowly coming around to this point of view, and in recent years has cut back drastically in its activity enforcing the Act. But private litigation under the Act has, if anything, increased. It has taken years of substantial hostility to the Act in the enforcement and academic communities to result in a mild judicial trend towards more narrow interpretation.

The inability of government administrators in the United States to deal conclusively with policy matters consigned to them, as in the case of antitrust policy, leaves the burden on the Congress. These policy questions therefore become political, as they are in Japan. But in Japan, the political decisions are made by the executive, while in this country policy changes may require legislation. This can be a long and politically divisive process, to judge from the infrequency of such substantive legislation in the antitrust field and the furor that has greeted proposals, in the last decade, to lessen concentration and repeal Robinson-Patman.

Obviously the present Administration's analytically-rigorous view of antitrust policy should, political problems aside, cause it to call outright for the repeal of the Robinson-Patman Act and most of the Clayton Act as well. Instead, the Antitrust Division has committed itself to a course of, first, case selection according to its own policy views, rather than precedent; second, wresting important cases away from the FTC; and third, speeches, published guidelines and intervention in private litigation to advocate its policies.

Moreover, at some point the Administration also will be confronted with State attorneys general, weighing in on behalf of antitrust initiatives so recently abandoned at the federal level. Consequently in these areas in which enforcement is committed in whole or in part to the private sector or to the States in our system, we must take into account not only the private responses to federal public policy but also the necessity of federal reaction and adjustment to private and State litigation.

III. Some Examples of Japanese Regulatory Action

Several examples of Japanese experience with regulations of which I am aware may be useful to the Subcommittee.

A. Matsushita televisions. An example of the consumer-orientation of Japanese industry and its response to regulation is the incident involving Matsushita television sets and the U.S. Bureau of Radiological Health in 1974 and 1975. The Bureau had set certain standards for acceptable radiation levels under ordinary operating conditions. The testing procedure consisted of attempting to force the set to exceed the legal radiation level by making various components fail.

In Matsushita's case, the BRH was able to force the voltage limiter to malfunction by disabling the filter choke and resetting both the user and service controls. This resulted in excessive radiation, but it also distorted the picture. The normal viewer would turn off the set, thus eliminating any radiation risk. Consequently the radiation risk was purely a laboratory phenomenon, brought on by the test procedure itself rather than by any potential real-life defect. It would not have occurred in actual use. Nevertheless, BRH contended that the sets failed to meet the safety standard.

A U.S. company probably would have sought a legal solution to invalidate the BRH testing standard in question. However, Mr. Matsushita himself stepped into the picture and declared that the company had an obligation to its customers to ensure that its sets comply with all safety regulations and government orders, no matter how unfounded they might seem. Instead of contesting the BRH order in court, he ordered a recall program for almost 300,000 sets involving scores of Japanese engineers and costing over $15 million. Thus Mr. Matsushita, perceiving the compliance matter as an engineering problem, pursued and found an engineering solution.

Contrast this with the 1978 case involving a potential shock hazard in Zenith TV sets. The Consumer Product Safety Commission was concerned that a reliability problem involving a power capacitor would result in an unduly high probability of shock. Zenith objected, claiming that the probability of shock was very low in absolute terms, as indeed it may have been. The question was what was an acceptably low level. Zenith fought the CPSC for three years but was finally forced to make a recall.

Regardless of the substantive merits of these cases, they illustrate well the fundamental difference in attitudes. The Japanese avoid litigation arising from such regulations whenever possible, even if considerable costs are involved.

B. Japanese automobile industry. The Japanese automobile industry offers several instructive examples of the Japanese regulatory system in action. Particularly noteworthy are the less than successful efforts of MITI first to suppress, and then to rationalize and consolidate, the domestic automobile manufacturing industry, and the imposition of auto emission regulations beginning in the late 1960's.

The history of MITI's dealings with the automobile industry suggests that it would be wrong to conclude that industry and government in Japan work hand in glove, despite the relative degree of cooperation and dialogue between them which I have described. Though in the past the auto industry has benefited from governmental policies, the industry has exhibited resistance to government suggestions. In the 1950's MITI sought to prevent the establishment of major automobile companies in Japan, deeming it an inappropriate industry for Japan on a variety of grounds, including doubts that it could be competitive in the world market. Having failed in that endeavor, in the 1960's MITI became convinced that the fragmented industry which had developed needed consolidation by merger. While the government had the best of motives, the industry strenuously resisted the imposition of such a course. Because no consensus on the general direction of the industry had been reached prior to MITI's attempt, its "from-the-top-down" approach failed.

In the same industry, however, a "from-the-bottom-up" approach worked splendidly in the case of emission controls. By the 1960's the air in Japan, and particularly Tokyo, had become extremely polluted. An environmental movement sprang up parallel to that in the United States, producing drastic changes in Japanese society's attitudes towards nature and the environment. This resulted in 1967 in the Basic Law For Environmental Pollution Control. By 1970, the environmental movement had gained such momentum that Japan adopted wholesale from the United States the auto emissions provisions of our 1970 Amendments to the 1966 Clean Air Act -- what the Japanese call the "Muskie Law". Parenthetically, the Japanese legislation included a change in the 1967 law which is noteworthy in view of the current trend in environmental policy in this country. The 1967 law had contained a clause which required that environmental solutions be sought in "harmony with economic development." In what was, for the Japanese, a sharp delineation and reversal of priorities, this clause was deleted in 1970.

Beginning immediately after the 1970 enactment, the Japanese industry worked with the government on developing the technology necessary to achieve the newly-mandated environmental goals. Both the U.S. and the Japanese law contained waiver provisions which would permit individual companies or lines of cars to meet lesser standards in special circumstances. All companies sought the use of these waivers in the United States, and many waivers were granted. Almost none were granted in Japan. As a result, by 1975 Japan had the strictest emission standards in the world. Because Japanese industry had been cooperating with the government all along, their automobiles met those standards, and therefore exceeded the U.S. standards. By 1979, the Japanese standards were so strict that few foreign cars could meet them. In order to avoid the threatened exclusion of all imported vehicles, the Japanese government granted a waiver of compliance with its standards for emission of oxides of nitrogen to foreign vehicles for three years, a government action discriminating against Japanese cars and granting more favorable treatment to imported cars.

The Japanese industry achieved these high standards with less governmental monetary assistance to the private sector to help it achieve pollution control than any other OECD country, including the United States, except the Netherlands. The support the Japanese auto industry received from government was, if you will, moral, not monetary. A consensus had been reached on the national priorities, and all parties strove to implement them.

IV. Conclusions and Recommendations

Mr. Chairman, while I think it is obvious that the regulatory system in Japan and the system in the United States each has its strengths and weaknesses, and each has features that would be difficult to transplant into alien soil, I do believe there are some aspects of the Japanese experience which can provide useful insights. They are the basis for the following suggestions for restructuring the organizational dynamics of production and distribution of goods and servives in tandem with more cost-efficient coherent and effective government-industry interactions in the United States.

A. Moderation of the adversarial relationship. I would recommend first of all that the Congress and the government as a whole seek to articulate their concern over the need to transform the traditional adversarial relationship between government and industry, and, to the extent it is within their purview, between industry and labor. We must work toward a less conflictual and correlatively more cooperative enterprise motivated by shared longer-term economic objectives. I believe that a start can be made in this direction by making legislative and regulatory changes designed to shift from a system of regulation based on prohibitions enforced by penalties to one based on more dynamic or flexible use of incentives and disincentives to encourage performance in fulfillment of consumer goals. Too often in the past both government and industry have reinforced confrontation by choosing the negative road to the achievement of objectives when a more positive approach might have been at least as effective. Additionally, more emphasis should be put on regulating procedures and the flow of information -- which regulation does well -- and less on "command-and-control" regulation of market characteristics, which tends to be less successful.[21]

To begin this process, we should open up the channels of communication between business and government. These powerful forces in our society must share their concerns outside the four walls of the public hearing room, where government agencies sometimes listen perfunctorily to the protestations of industry about the difficulties and costs of a proposed regulation, make a few minor modifications, and then rule essentially as they intended from the beginning. Positive interaction between government and industry is indeed possible; without it, destructive polarizing adversarial relations are inevitable.

B. Deregulation. Second, I think we must press forward, as the Administration obviously intends to do, with the efforts of the past few years to simplify, reduce and where possible eliminate excessive or unnecessary regulatory burdens. Although it is generally acknowledged, even by that staunch conservative Irving Kristol,[22] that regulation *per se* is not evil and is even necessary at times, there has been a fundamental failure in the way in which government has intervened in the market.

While there have been numerous complaints about *unsolicited* government intrusion into the marketplace, with which I am inclined to agree, little attention is paid to the equally widespread phenomenon of *solicited* government intervention. I am speaking now from my experience in the international trade arena. In this country, for all our talk of the need for new investment, we do not give equal weight to the reciprocal capitalist tenet of *dis*investment. Businesses, if they are sufficiently influential, are not allowed to fail. True, direct bail-outs are rare, but indirect salvation through regulatory protection is all too common. The industrial deadwood is not cleaned out; instead it is given just enough nourishment to struggle on a few more years. Textiles, televisions, stainless steel flatware, sheet glass, and perhaps one or two others are the only examples of industries in the United States I can think of which received relief under our trade laws, used that period to restructure and emerged from the relief period as a viable international competitor. Even in the case of textiles, this revival is occurring only after some 25 years of protective and anticompetitive restraints on imports.

The steel industry is one of the most glaring examples of the substantial failure of protectionist regulation. The 1969-1974 "voluntary restraints" on exports by Japan and the EEC were purportedly designed to give the U.S. companies a period in which to modernize, as the new conditions of world competition required. In fact, they reduced capital expenditures for new plant and equipment. The General Accounting Office in 1974 estimated that this protection to the steel industry cost consumers between $500 million and $1 billion annually in terms of higher prices paid for steel.[23] Yet, despite this massive subsidy by the consumer, the GAO concluded that there had been no improvement in the competitive position of the U.S. companies through 1973 as measured by unit labor costs.

This unwillingness to permit involuntary disinvestment stands in sharp contrast to the Japanse approach. They systematically allow their "sunset" industries to expire if they cannot compete. Protection in Japan is accorded to "sunrise," knowledge- and information-oriented industries, and then is withdrawn when a healthy competitor has been established. And even once-favored industries are allowed to fail as the technological process of innovation moves on. This is happening currently with petrochemicals, paper and aluminum, and has frequently happened in the past, notably in the shipbuilding industry.

The case of monochrome television receivers comes to mind. Japanese black-and-white TVs swept the world. But other Asian countries such as Taiwan and Korea were able to gain a comparative advantage, and Japanese domestic production was allowed to plummet. The Japanese producers did not spend their time, energies and resources seeking government protection. Instead, they moved quickly to shift production overseas to the new lower-cost areas and to convert domestic facilities to the manufacture of other, more advanced products such as video tape recorders, etc.

The lesson in this is that disinvestment must not only be allowed, but encouraged, and accordingly excessive use of trade relief statutes should be tempered except where genuine national security concerns are involved. In the long run, this will not only boost national productivity to enhance national defense as well as economic activity, but will also contribute to a better climate of relations between industry and government.

C. Taking the long-term view: In-house worker training. Third, we must search for ways to lengthen the perspective of both regulators and management in this country so that action plans based overwhelmingly on short-term performance criteria will be de-emphasized in favor of ideas and actions geared to the long-term welfare of the company, the industry and the nation. If we are successful in this effort, I believe we can further reduce the areas of conflict between government and industry and diminish the need for non-market controls. Hearings such as these can help in this search, but we must also mobilize the Executive Branch, the business community, organized labor and the universities in this essential endeavor.

I believe the most significant way of changing the short-term perspective of management is to imbue it with a new vision of its responsibilities toward training workers. If U.S. management were to reverse its long indifference to its in-house training capabilities, a longer-term attitude would necessarily result. The investment in education would motivate management to address the job security concerns of its skilled employees. The overall rise in skill levels would make these employees more productive and better able to address quality control problems, and would make management more willing to listen to their solutions. Job satisfaction would increase, and therefore employee turnover would decrease. The increased number of qualified persons for high skill level jobs, which are increasingly a part of the industries of the future, would reduce the highly cost-inflationary practice of raiding of other companies' personnel.

In truth, the stability resulting from such a change would transform the American economy. The quality of human input is the single largest factor in productivity, and productivity is the key to growth and international competitiveness.

The Japanese companies rely almost entirely on in-house training of their workers. They did not, however, undertake this training premised on a life-time employment contract with the worker. Just the opposite: The life-time employment system arose because of the companies' willingness to educate their people to fill the jobs required.[24] If a job function faces technological displacement, the company sees it as its responsibility to retrain the worker to fill a new job. This practice instills loyalty. Why move to a job with a different company when your company will retrain you for a new job, especially when it is not likely that the new company will give you any better conditions? Inter-company rivalry in Japan is so intense that compensation levels do not vary a great deal for a given job.

Education is the key: Practical training of workers; retraining where necessary; advanced training of engineers.

In Japan, 20 percent of all baccalaureate and about 40 percent of all master's degrees are granted to engineers. In the United States, 5 percent of each category are engineers, many of them are foreign nationals.[25] How can we maintain a technological edge under such a handicap?

On the re-skilling of the labor force, I have borrowed a suggestion:

> The nation is about to embark on a major military buildup. Military contractors should be given funds not just to produce military equipment, but also to produce skilled workers. They should be prohibited from hiring skilled workers from civilian industries but paid to train all of the extra skilled workers that they will need over the next five years. And when the current expansion of military production is over, the economy would receive an extra bonus in the form of a much larger supply of skilled blue collar workers.
>
> The military-industrial complex should be made into the prime training ground for skilled blue collar workers. It is in their interest in the short run and everyone's in the long run.[26]

On the problem of more advanced engineers, it used to be standard company practice in our country to send an engineer back to the university for advanced training if necessary. No longer. Persons with both practical experience and advanced degrees have become in such demand that additional training amounts to an invitation to your competitor to hire the newly-trained employee out from under you, costing the company both the employee and its investment. The raiding problem would go away if there were sufficient numbers of engineers with practical and advanced theoretical skills.

An investment tax credit to companies for such advanced training should serve, at the least, to offset the cost of the investment, and should therefore spur a large influx of engineers back into the universities.

* * * * *

I believe these are measures which will improve significantly our productivity and the climate necessary for further advances. Equally important, I believe they are well within our capability to achieve. True, we have many ingrained attitudes which will prove resistant to change. But Americans have also proved themselves in the past to be as resilient and adaptable to new conditions and demands as any people on earth. If those of us who see the dangers in our present condition, including the members of this Subcommittee and others in the Congress and elsewhere in the Government, can communicate our awareness, I am convinced that American industry, labor and government will make the necessary response.

That completes my statement, Mr. Chairman. I will be pleased to try to answer any questions which you or your colleagues may have.

Footnotes

1. David Vogel, "An American Parodox: Business Distrust of Government", *The Center Magazine*, November/December 1977, p. 69.

2. Anne Strick, "Trial by Battle", *The Center Magazine*, May/June 1978, p. 51.

3. Eugene J. Kaplan, *Japan: The Government-Business Relationship*, U.S. Department of Commerce, Washington, D.C., 1972, p. iv.

4. *Id*. at p. 72.

5. Akio Takeuchi (translated by Malcolm Smith), "Should There Be a General Provision on the Social Responsibility of Enterprises in the Commercial Code?" 11 *Law in Japan* 37 (1978).

6. Peter F. Drucker, "Behind Japan's Success," *Harvard Business Review*, January-February 1981, pp. 89, 90.

7. Yoriaki Narita (translated by James L. Andersen), "Administrative Guidance", 2 *Law in Japan*, 1968, p. 45. For a further discussion of the subject, see Kazuo Yamanouchi (translated by Peter Figdor), "Administrative Guidance and the Rule of Law," *7 Law in Japan*, 1974, pp. 22-33.

8. Jonathan R. T. Hughes, *The Governmental Habit* (1977), pp. 238, 239.

9. Lewis Austin, *Saints & Samurai: The Political Culture of the American and Japanese Elites*, Yale University Press, 1975, p. 126.

10. A. Takeuchi, *op*. *cit*. *supra*, at p. 47.

11. Peter H. Schuck, "Regulation: Asking the Right Questions," *National Journal*, April 28,1979, pp. 712-713.

12. Woodruff Imberman, "Strikes Cost More than You Think," *Harvard Business Review*, May-June 1979, p. 133.

13. "Japan 1980: An International Comparison," Keizai Koho Center (4th ed., 1981).

14. Bureau of Labor Statistics, "International Comparison of Manufacturing Productivity and Labor Costs: Preliminary Measures for 1980", May 20, 1980.

15. Burton, G. Malkiel, "Productivity--The Problem Behind the Headlines", *Harvard Business Review*, May-June 1979, p. 88.

16. Ibid.

17. Time, July 6, 1981, pp. 46-48.

18. Compiled from Motor Vehicle Safety Defect Recall Campaigns, published by the National Highway Traffic Safety Administration, for the years 1974-1980.

19. Ed Cray, Chrome Colossus: General Motors and its Times, McGraw-Hill Book Company, 1980, p. 514.

20. Charles Goldsmith, "Firestone Case: A Lesson for Lawyers." Legal Times of Washington, Oct. 23, 1978, p.32.

21. Schuck, op. cit. supra, at 715.

22. Irving Kristol, "A Regulated Society", Regulation, July/Aug. 1977.

23. "Economic and Foreign Policy Effects of Voluntary Restraint Agreements in Textiles and Steel," Report by the Comptroller General of the United States, March 21, 1974, p. 23.

24. Chiaki Nishiyama, "Small Government and Japan", Look Japan, July 10, 1981, p. 11.

25. Science and Engineering, Education for the 1980's and Beyond, National Science Foundation and Dept. of Education (Washington, D.C., 1980).

26. Lester C. Thurow, "Wanted: More Skilled Workers," New York Times, May 3, 1981.

Senator HAWKINS. Perhaps we might hear from all three panelists and then ask questions. Mr. Bradford, vice president of Merrill Lynch, would you please proceed?

STATEMENT OF CHARLES A. BRADFORD, VICE PRESIDENT, MERRILL LYNCH, PIERCE, FENNER & SMITH, INC., NEW YORK, N.Y.

Mr. BRADFORD. My name is Charles A. Bradford. I am a vice president in the Securities Research Division of Merrill Lynch, Pierce, Fenner & Smith, Inc. My research group at Merrill Lynch advises our clients, primarily investors, about the steel and coal industries. We have a joint responsibility.

I am not here today to suggest particular regulations that need to be eliminated or changed, but rather to demonstrate the negative effect of regulations—specifically the delays caused by regulations—on the international competitiveness of the domestic steel industry. Clearly, some regulation is required, but too much can be expensive and has been harmful to American industry in many ways.

Please keep in mind that our normal research involves analysis of the current situation and the future trends of an industry. We also analyze the companies that constitute that industry. We do not try to "correct" industry problems or to influence government actions. In this case, I believe that I might add to your deliberations and thus improve the competitiveness of the entire domestic steel industry and possibly American industry in general. These comments are not the views of Merrill Lynch, but are strictly my own.

Before I get into my prepared statement, I'd like to make one point which I think needs to be made. We do not believe that there is a technological gap between the American steel industry and the Japanese steel industry. The knowledge of what technology needs to be put into place or what technology is available is readily apparent.

The gap is on the installation of that technology. The American industry has not had the capital to install modern facilities as the Japanese have done. We believe that the problems relate to lack of profitability, lack of capital formation, and things of that ilk which hopefully will be corrected like a lack of productivity growth, excessive wage increases—we could go on indefinitely, but the problem is not one of not knowing what to install. The problem is being able to do so.

But there are two aspects of regulation that I wanted to cover today which we believe to be especially onerous, one being delay and the other being uncertainty.

Let me get rid of uncertainty first, since that's probably the easiest and the more nebulous of the two factors, and concentrate more of my time on delay.

On a number of occasions, the managements of the companies we have talked to have complained about the problems of meeting specific regulations because of the lack of clarity in setting forth the regulations. Some companies have literally taken the position that it's better to be sued by the EPA and find out in court what they have to do than to actually make a good faith effort because they have found that the good faith effort has not been satisfactory to the regulators. The regulations tended to be changed in midstream at great expense.

In Japan, on the other hand, where there is a dispute, they generally are not settled by courts. In fact, there are few in Japan. Generally, a panel of mediators from government, industry and academia would set the consensus—the consensus that Mr. Tanaka described. Generally they would be unanimous, at least on the face of it, and people would work toward meeting the goals. Litigation is ruled out except in extreme cases.

A part of the rationale and the way this works is that the Government of Japan has been able to attract some of the cream of the university graduates. Their forecasts have tended to be quite good and they therefore have a proven track record, one that industry tends to follow but not always.

In the United States, as a case in point, the Department of Commerce in its annual forecast of the steel industry often misses by more than 10 percent. In Japan, a miss of 2 percent would be extremely large. So that the following of meeting guidance is more one of following a proven track record and expert guidance than the stick approach that we tend to follow.

An example can also be raised in the area of pollution control. The regulations in Japan tend to be tougher than in the United States, but they are also easier to meet because modern equipment has been built with pollution control in mind and when you try to retrofit pollution control equipment on an old steel mill it tends to be much, much more expensive and not as efficient.

The companies tend to work with the local authorities. The regulations tend to be more local than national and local authorities will actually tap the measurement equipment of the companies so they get the same reading that the company has. The system tends to be more geared to, as I understand it, meeting specific goals rather than specific regulations on each piece of equipment—more like the bubble concept proposed by the EPA probably about 1 year ago, whereby you would measure the outside perimeter of a mill to make sure the emissions met the requirements and not worry about each individual facility within. It tends to be more efficient.

I have in my prepared statement presented a hypothetical case showing the impact of delay, and delay in the United States is often environmental delay, but I think there are some comments that I also could add as to the cost of this environmental control.

For example, we believe that a 96-percent cleanup of air pollution would cost something in the neighborhood of $4 billion for the industry. A 97-percent cleanup, however, 1 percent more, would increase that cost more than 25 percent. Go another 1 or 2 percent and you add more than 50 percent and I think it's very clear that adding minor amounts of emissions control is overly costly for what you get.

Back to my more important point—that is, the effect of delay. In the United States, a steel company tends to take a minimum of 3 years—more like 4—to get permission to do almost anything on a major scale. Japan is more likely to be 1 year or less, depending upon where you want to build your steel mill. You still have to meet emissions requirements. You still have to meet the local guidelines. That is very, very costly, especially in an inflationary era. It also takes much longer to actually build a plant in the United States than Japan. I visited Yokoshima plant of Nippon, which is Japan's newest plant, and it was built in 1 year and 10 months from a green field site. In the United States, the United States Steel Corp. has proposed a plant at Conneaut, Ohio, and they have set 5 years. I personally believe they could probably do it in 3, and there might be a little bit of exaggeration in the 5, but in the example that I've used what I've done is I've built a hypothetical plant in the United States and a hypothetical plant in Japan, neither of which, by the way, would be done today, neither of which are economically sound. But as it turns out in today's dollars it would have cost the same in the United States and Japan to build a mill. That was not the case during the seventies when automobiles were built in Japan. At that time it was less costly in Japan, but in today's dollars it would be about the same.

However, when you take the 6 years—3 years for permits and 3 years for building in the United States—you end up with not $1,300 1981 dollars; you end up with $1,815. You add interest during the period of construction, which I assumed at a 10-percent rate, way below current market but we are assuming better interest rates—lower interest rates in the period ahead—you end up with total capitalized construction cost of close to $2,100.

To do the same thing in Japan, you end up with a total cost of $1,500 as a per annual ton of capacity. By the time you work that into your actual operating costs, Japan would have an advantage of $150 per ton of steel produced each year. The current price of steel in the United States is $500.

This is something that is not supportable and that's one reason why neither plant will get built. Even the figures I have used for Japan are too high in the Japanese scenario of today. They will not build a new steel mill either. There are some things that can be done to update existing plants that are much less costly, but this is an example why a steel mill cannot be built in the United States. It is just much too costly and we have used pretty favorable assumptions from the U.S. standpoint.

For example, we have not allowed the Japanese the benefit of the profit made during the first 3 years of operation before the United States mill got built or got finished. That would reduce their costs. But we have just looked at the actual cost of operating a mill itself.

What causes a delay? There are built-in factors, as you well know much better than I do. Litigation by groups of dubious interest can cause incredible delay. One of our suggestions would be to set absolute time limits from once a proposal is made to when regulations have to be settled when all permits are issued—much faster time limits than currently, maybe limit it to a year, but start to eliminate litigation at the low levels, possibly set up mediating panels, but have appeal possible to an appeals court level, but eliminate the early steps. I would, however, not have a panel such as the Carter administration set up for the tripartite panel for steel because I think it left out a very important factor and, frankly, made their conclusion illogical. They left out the financial community that has to pay for all this and their conclusion was, frankly, illogical from that standpoint.

They suggested, for example, that the dividends of the steel companies be cut but at the same time the steel industry sell stocks and bonds. It's highly unlikely. In fact, it would be illegal for some State pension funds to buy such securities.

These little things need to be handled a little bit less academically and more practically.

I would also like to suggest that the antitrust regulations be modified. We believe that the regulations have gone beyond the economic intent. The economic intent clearly is to stop unjust enrichment through the use of monopoly power. We compete in a world that is getting smaller all the time. We shouldn't look at competitiveness just within the United States, but should look worldwide.

The Japanese have five major steel companies. Their steel companies are of an economic size to build modern mills. No company in the United States can afford a modern mill other than possibly United States Steel, and it would strap them unmercifully.

A modern steel mill, full sized, in Japan—and they have several—is $11 billion. United States Steel's capital is less than $6 billion—their equity capital. It's totally uneconomical. So we believe that the economic analysis underlying antitrust should be more international in scope and not worry about bigness for bigness' sake, but worry more about getting more efficient production for the average person.

That concludes my comments.

Senator HAWKINS. Thank you, Mr. Bradford.

[The prepared statement of Mr. Bradford follows:]

PREPARED STATEMENT OF CHARLES A. BRADFORD

My name is Charles A. Bradford. I am a Vice President in the Securities Research Division of Merrill Lynch, Pierce, Fenner & Smith Inc. My research group at Merrill Lynch advises our clients, primarily investors, about the steel and coal industries.

I am not here today to suggest particular regulations that need to be eliminated or changed, but rather to demonstrate the negative effect of regulations (specifically the delays caused by regulations) on the international competitiveness of the domestic steel industry. Clearly, some regulation is required, but too much can be expensive and has been harmful to American industry in many ways.

Please keep in mind that our normal research involves analysis of the current situation and the future trends of an industry. We also analyze the companies that constitute that industry. We do not try to "correct" industry problems or to influence government actions. In this case, I believe that I might add to your deliberations and thus improve the competitiveness of the entire domestic steel industry and possibly American industry in general. These comments are not the views of Merrill Lynch, but are strictly my own.

Two aspects of regulation appear to me to be especially onerous.

1. Delay
2. Uncertainty

Let me dispose of the second aspect first, so that I can spend most of my time discussing the negative effects of delay, -- something that can be measured in contrast to uncertainty, which is wholly nebulous.

On a number of occasions, companies' managements have complained about the problems of meeting specific regulations because of the lack of clarity in setting forth the regulations. Even when the regulations were exact enough, less expensive methods of meeting the goals of the law were often available. In other cases, requirements were changed after companies had begun or completed construction, and expenditures were either wasted or the company made subject to law suit for non-compliance.

Some companies seem to have taken the attitude that delay and forced lawsuits at least lead to clarification of the regulations and to specific requirements that can then be met. That can be the more prudent strategy from management's point of view. Please keep in mind, however, that publically owned companies are always subject to the threat of lawsuits on the part of shareholders or various government agencies -- groups that always have perfect hindsight about "mistakes" or misuse of corporate funds.

In Japan, on the other hand, a panel of what essentially amounts to mediators attempts to effect compromise. The panels comprise an equal number of members from each of three fields - government, industry, and academia. Litigation is essentially ruled out and thereby limits delays in getting "whatever" accomplished. Particularly important is that government employees in Japan are often the "cream" of their classes at the university, and their recommendations are often followed because of their "proven" track record of correct forecasts and analysis. For example, Japanese government forecasts about the steel industry are rarely inaccurate. Last year, the United States Department of Commerce missed its steel-shipment forecast by more than 11%

(11-million tons). The forecasts of the Japanese Ministry of International Trade and Industry are usually accurate to within one or two percentage points (one-to-two million tons). I might add that the United States steelmakers were not much better in their forecasts, but that is another matter.

Thus, when the Japanese government suggests something to the steel industry, the industry often but not always agrees. In environmental matters, for example, the Japanese requirements are tougher than are those in the United States. Nevertheless, the process of granting permits to build new facilities, such as an integrated steel mill, rarely takes longer than a year in Japan in contrast to perhaps four years in the United States. A Japanese company's pollution-measuring equipment is tapped by the local authorities, and the companies are given the responsibility for meeting the requirements in whatever way they choose. I believe that this system is something like the so-called bubble concept whereby sensors measure ambient air surrounding a plant to insure compliance rather than attempt to set specific guidelines for each piece of equipment. Litigation almost never occurs. The terminology used in setting standards outside the United States is "best practical" technology rather than our idea of "best available" technology, which can lead to endless disagreements.

In my opinion, the delay created by regulation represents the greatest cost to the domestic steel industry in comparison with that faced by the Japanese steel industry. As an example, I have constructed a table that shows the effect of delay on the feasibility of building a hypothetical integrated steel mill. Some assumptions are important. First, I have assumed that the cost in 1981 dollars of building such a mill would be the same in both countries ($1,300 a ton). I have also assumed that interest rates in the United States would decline to more nearly normal levels for long term bond financing, but Japanese rates would stay at the present 6.25% level. I have also assumed a three-year cycle for receiving permits in the United States and a three-year building cycle, even though U.S. Steel has claimed that it might take as long as five years to build a new mill at Connaught, Ohio, if it ever receives a go head, which it may not get unless conditions change radically. I have seen a new mill completed in Japan within one year and ten months of ground breaking. Although I have allowed an additional year for permits, in my assumptions, less time might be needed in some areas of Japan where local authorities are seeking development. I have also assumed that actual construction costs will rise in line with inflation. In the United States, inflation in construction costs has been greater than the overall rate of inflation.

Comparative Steel Mill Construction Costs
United States Vs. Japan

United States	1981	1982	1983	1984	1985	1986	Total
Construction $1300 a ton (1981 dollars)	-	-	-	433.3	433.3	433.3	1300
Inflation (1981 = 1.0)	1.00	1.10	1.20	1.29	1.40	1.50	
Actual Cost	-	-	-	559.0	606.6	650.0	1815.6
Interest Capitalized @ 10%	-	-	-	28.0	86.2	149.1	263.3
Total Amount of Capital Invested	0	0	0	587.0	692.8	799.1	2078.9
Annual Operating Costs:							
Depreciation @ 15 years							138.6
Interest @ 10%							207.9
Total Capital Cost Per Ton of Steel Produced							$346.8
Japan							
Construction $1300 a ton (1981 dollars)	-	650	650				1300
Inflation (1981 = 1.0)	1.00	1.06	1.12				
Actual Cost	-	689.0	728.0				1417.0
Interest Cost @ 6.25%		21.5	65.8				87.3
Total Amount of Capital Invested		710.5	793.8				1504.3
Annual Operating Costs:							
Depreciation @ 15 years							100.3
Interest @ 6.25%							94.0
Total							194.3
Japanese Cost Advantage - $/ton							$152.5

As the preceeding table shows, the domestic steel industry is at a serious cost disadvantage due solely to delay. Although inflation is the ultimate culprit, delays allowed inflation to take its toll and to make the domestic steel industry uncompetitive. The inflation rate in the United States has been much greater than that in Japan, despite Japan's greater dependence on imported fuel and raw materials. It should also be pointed out that the disadvantage shows up in the cost of imported materials made from steel such as automobiles, as well as the sale of steel itself.

What causes the inordinate delays in the United States? You probably know better than I the delays that are built into various regulations and the further delays that can be caused by litigation on the part of parties with dubious interests. I suggest that an absolute and short time limit be set for the process of issuing permits. Furthermore, I suggest that regulations be written with the end result clearly specified and that the business community be given the option of deciding how to meet the rules.

Rather than resorting to litigation when differences occur, I suggest that mediating panels be established with full authority to settle disputes. I suggest that each party name one-fourth of the members of the panel, that another fourth comes from academia, and that the remaining fourth comes from the labor and the financial communities. Appeal, in my opinion, should be permitted only to the United States Appeals Court, and strict time limits should be imposed for receiving a decision.

In general, I believe that we have vastly more regulations then are necessary. The free market system has shown its worth many times - the energy situation an ideal example. Remember the natural gas shortages and the gasoline lines of a few years ago? Rather than forcing industry to seek ways of avoiding burdensome regulations, I believe that putting a "sunset" provision into effect and streamlining the remaining regulations would go a long way toward allowing American industry to compete more effectively.

Unfortunately, that will not, in my opinion, solve the domestic steel industry's key disadvantage in comparison with the Japanese, Canadians, and other producers - namely, excessive wage rates. Even that problem could be helped somewhat, however, for an industry with greater capital available for investment would probably improve its productivity and thus reduce unit labor-cost increases.

Whether the added capital would be invested in the steel industry is an open question. Except for 1974, the industry's return on investment has been substantially below average in every year since 1958. Any regulation that would force an industry to reinvest within specific bounds is faulty economics, in my opinion. In fact, such investment might be imprudent in face of the industry's record. We believe that the potential for greater future profitability will attract capital to the industry. Less regulation might help lessen industry risks, another key factor if investment is to be justified.

In my judgement, anti-trust legislation and regulation is another matter that needs attention. The original intent, the prohibition of unjust enrichment from monolopy power, has given way to stopping bigness as though bigness were an economic problem in itself. In the steel industry, for example, the Japanese have clearly demonstrated that a 10-million metric-ton integrated steelmaking plant is especially efficient. We have no plants of that size. In fact, the average United States plant is closer to 2.5-million tons. I further contend that if all the plants in Youngstown, Ohio, had been merged into one efficient plant years ago, we would still have a major steel industry in Youngstown, despite its disadvantageous location. From an international economic view, the key to proper anti-trust regulations, I believe is to allow efficiency-enhancing mergers so long as no unjust enrichment is occurring. We must remember that the United States is not shielded against competition from abroad.

Senator HAWKINS. Mr. Howe, please proceed.

STATEMENT OF NATHANIEL S. HOWE, VICE PRESIDENT AND GROUP EXECUTIVE, MACHINE TOOL SYSTEMS GROUP, LITTON INDUSTRIES, INC., HARTFORD, CONN., AND VICE CHAIRMAN, NATIONAL MACHINE TOOL BUILDERS' ASSOCIATION, NMTBA, ACCOMPANIED BY JAMES H. MACK, PUBLIC AFFAIRS DIRECTOR, NMTBA

Mr. HOWE. Thank you, Senator Hawkins and Congressman Richmond, my name is Nathaniel Howe and I'm vice president and group executive of the Machine Tool Systems Group, Litton Industries, Inc., of Hartford, Conn. We manufacture high production, precision, metalcutting machines for a diverse array of industries.

I am also vice chairman of the National Machine Tool Builders' Association (NMTBA), in whose behalf I appear today. I am accompanied by James H. Mack, NMTBA's public affairs director.

Collectively, American industry has the expertise and ingenuity to out produce any competitor in the world. But with aging manufacturing plants, capital that is being eaten up by inflation, and tax legislation that encourages consumption while discouraging savings and investment, it has become increasingly more difficult for us to compete in the world marketplace. This is true of all America's industry including our own.

Since 1964, American imports of machine tools have more than tripled, from 7 percent of total consumption 16 years ago, to almost 30 percent this year. Our prepared statement describes in considerable detail the ever-increasing role that Japanese imports have played in this process. In 1980, $1 out of every $9 spent by American industry on machine tools was spent on Japanese equipment. The 1981 figure is likely to hit at least 15 percent given current trend lines.

A most disturbing recent report of the House Armed Services Committee has characterized our defense industrial base as being unprepared for crisis.

Our industrial base is becoming increasingly dependent upon foreign machine tools which in time of a national emergency could cause severe production problems and seriously threaten our national security. Of particular concern is the fact that many of these machines are of a sophisticated technologically advanced type, and this is a sector in which this country cannot afford to rely on foreign sources.

We must be certain that we remain the world leader in technological innovation. But in order to insure such leadership it is imperative that the basic industries which foster such research remain healthy. In this regard, we commend the tax writing committees of both Houses of Congress for including in the legislation currently before you provisions which will greatly facilitate increased research and experimentation. Moreover, we believe that these provisions along with accelerated capital cost recovery are essential to the revitalization of the U.S. economy as well as the maintenance of an appropriate national defense posture.

From June 1 to June 11 of this year, seven American machine tool executives, accompanied by three members of the NMTBA staff, conducted an intensive tour of a number of Japanese machine tool plants and other Japanese manufacturing installations.

The members of our group brought to this mission varied backgrounds in the machine tool industry. Although our visit was brief, it was intensive.

My testimony today represents a compendium of what we saw in Japan this spring and our consensus as to what needs to be done by U.S. business and—second, by the U.S. Government, if our industry is to survive as it should.

In Japan, within a company, there exists only one attitude; namely, that the company's welfare is the all-consuming objective. All workers, regardless of assignment, see the company's objectives in terms of growth, improved quality and design, and reduced costs of manufacture, as their own objectives.

With this unique company spirit prevailing, the Japanese industrial success is not surprising. The striving for continued improvement dominates each operation. The final ingredient in the cementing of the relationship between management and labor is the granting of permanent employment status.

In the factories one is immediately impressed by the high level of technical skills of the employees. This is the result of a strong technical foundation achieved in the technical high schools. A team spirit prevails. While the pace is not furious, it is steady and all equipment is carefully maintained and produces parts all day without interruptions. Pride in quality workmanship is clearly evident.

The design of Japanese machines seemed excellent and the quality of the workmanship evident throughout. Nothing was apparent, however, which indicated a superior grasp of technology. Some innovative design for cost savings was found, but this was the exception. Solid design seemed to be the rule.

What we saw was boundless energy and determination to put into practice the latest state of the art of machine tool design. As for manufacturing technology, the Japanese, on the basis of their long-range planning, have made major investments in manufacturing facilities, machinery, and equipment to produce in volume thereby minimizing the cost of production. The result of this investment combined with the effectiveness of the workplace effort has led some observers to conclude that the cost of the total labor content in a Japanese machine tool plant is no more than 50 percent of a comparable U.S. plant. This calculation is based on estimates that wages and fringes are approximately 80 percent of those received by U.S. workers. Now this statement relates to machine tool plants only.

The Japanese management has displayed a tremendous talent for marketing their products, particularly in the export markets. To the Japanese, the market is the only thing. Although the methods sometimes vary, they go after it in a very complete and professional way with no expense spared. And, as we shall discuss later, export trading companies often play a major role in these overseas sales.

The close relationship between business and government in Japan, which Mr. Tanaka has described very well, is subtle rather than overt. It is symbolized by the continuing presence of industry employees working in staff positions at the Ministry of Industry and Trade (MITI). In addition, close personal relationships cultivated over the years exist between the politicians in the ruling Liberal Democratic Party, the bankers, and leading industrialists.

The principle of forceful presence of the government in the affairs of the industry is clearly illustrated by the requirement that all technologically advanced machine tool exports are subject to export licensing.

The whole licensing process works very rapidly. For example, one company complained that the government "continually wastes time and is slow" to grant licenses. When asked about it, the representative elaborated that it can take 3 to 4 weeks to get an export license. Let me say, by comparison, our export licensing process takes months and can even take years in some cases.

On the rare occasions that national security is a factor, the Japanese process is very rapid as well. One company reported that it took only 1 month for approval of a COCOM license for the sale of a five-axis machine to the Soviet Union. Shipment of a comparable machine to the United States is not permitted.

We in this country take COCOM regulations very seriously, thus we were surprised to discover that Hungary has been licensed by a Japanese company to build a particular machine—the export of which would be prevented by the U.S. Government because it would violate the COCOM.

As for the bank-industry relationship, it is also a strong one. Their strong presence, either as major shareholders or major lenders to the companies, leads to encouragement of an expansionary policy since it is by commercial activities that the banks gain their success.

To this powerful working realtionship between government, banking, and industry, one must add the trading company to complete the picture. Trading companies are major factors in the development of export trade. As we have reviewed the effectiveness of these export trading companies, we have become convinced that it is imperative that legislation currently before Congress which would facilitate the creation of U.S. counterparts to these Japanese firms be expeditiously enacted into law.

In conclusion, clearly most impressive is their people-oriented style of management. While our work environment is sociologically different and would not digest the Japanese style, the underlying practice of sincerity and communication and participation by the work force in workplace activities is a valid and necessary objective for our managements.

As for manufacturing technology, we saw nothing that we cannot achieve, given the proper commitment by both industry and government. By this, we mean an improved capital cost recovery system—which could be either the tax bill before the Senate today or the combination of expensing capital assets and corporate rate cuts under consideration in the House, increased incentives for the research and development of new technology, an honest government-supported export policy which will permit us to be competitive with other exporting nations in all respects, including the extremely important availability of competitive financing—and finally, sensible government regulations.

Although the American machine tool industry is relatively small by comparison with other industries, and in spite of the high cyclicality which characterizes demand for our products, our industry takes pride in the fact that it has increased capital investment 30 percent per year for the past 5 years. Unfortunately, even this is insufficient to put us in a truly competitive posture vis-a-vis Japan.

For 10 years there has been a steady decline in the rate of growth of productivity. This decline has been a major contributor to the horrendous inflation of recent years. Logic tells us and history proves that productivity growth is the path toward overcoming inflation and equally important to providing jobs which the country sorely needs. Prompt concerted action taken by government, industry, labor—and let's not forget the educational process—can reverse this trend. We can do the job. Given the proper climate and the chance to compete on fair terms, we can meet the Japanese challenge.

Thank you very much.

[The prepared statement of Mr. Howe, together with additional statements, follows:]

PREPARED STATEMENT OF
NATHANIEL S. HOWE
VICE PRESIDENT & GROUP EXECUTIVE
MACHINE TOOL SYSTEMS GROUP
LITTON INDUSTRIES, INC.
REPRESENTING THE
NATIONAL MACHINE TOOL BUILDERS' ASSOCIATION
BEFORE THE
JOINT ECONOMIC COMMITTEE
SUBCOMMITTEE ON TRADE, PRODUCTION & ECONOMIC GROWTH
JULY 28, 1981

I. INTRODUCTION

Mr. Chairman and members of the Committee, my name is Nathaniel S. Howe. I am Vice President and Group Executive of the Machine Tool Systems Group, Litton Industries, Inc., of Hartford, Connecticut. We manufacture high production, precision, metalcutting machines for a diverse array of industries.

I am also Vice-Chairman of the National Machine Tool Builders' Association (NMTBA), in whose behalf I appear today. I am accompanied by James H. Mack, NMTBA's Public Affairs Director. NMTBA is a national trade association comprised of about 400 member companies which account for approximately 90% of United States machine tool production. The total industry employs over 90,000 people with a combined annual output of $4.0 billion.

While relatively small by some corporate standards, the American machine tool industry comprises a very basic and strategic segment of the U.S. industrial base. It is the industry that builds the machines that are the foundation of the United States' industrial and military strength. Few, if any, goods and services would exist in this country if it were not for machine tools. There would be no aircraft, ships, cars or railroads. There would be no appliances, agricultural machines, etc. In short, life as we know it today would be impossible without modern machine tools.

American industry, including the machine tool industry, collectively has the brains, the know-how, and the ingenuity to outproduce any competitor in the world marketplace. But, with aging manufacturing plants, with capital that is being eaten up by inflation, and with tax legislation that encourages consumption while discouraging savings and investment, it has become increasingly more difficult for the machine tool industry, the auto industry, the steel industry and many other U.S. basic wealth producing industries to compete in the markets of the world.

Since 1964 American imports of machine tools have more than tripled, from 7% of total consumption 16 years ago, to almost 30% this year. (See Figure 1) For the first time in history, the machine tool industry's balance of trade was negative in 1978. In 1979 it was negative by $400 million and in 1980 by $513 million. (See Figure 2)

A finer resolution of these aggregate trade statistics reveals that one out of every nine dollars spent by American industry on machine tools is being spent on Japanese equipment. Although import sales in our domestic market are not a new phenomenon -- as Figure 1 shows, the first wave of imports came during the mid 1960's, when import market share increased from about 7.5% to 12% -- Figure 3 clearly illustrates the dramatic jump in the value of foreign machines sold in the United States market which has occurred in the last three years. As you might have guessed, the value of Japan's machine tool shipments to the United States increased (both in terms of actual dollar value and percentage of market-share increase) the most during this period, more than quadrupling since 1977.

Clearly, the Japanese have targeted the United States machine tool market. This fact becomes quite evident when we examine the statistics detailing Japan's top ten machine tool markets for the years 1975 and 1980. (See Exhibit 1.)

In 1975, the United States market accounted for nearly 22.8% of all machine tools exported from Japan. Even at this point American purchases comprised the single largest export market for Japanese machine tool builders, with the Republic of Korea a distant second with 13.3%.

By 1980, almost four out of every ten machine tools exported from Japan were destined for American buyers. This represents an almost 75% increase in the share of Japanese machine tool exports being sold in the United States. This amounted to close to five times the volume sold in West Germany, the second largest Japanese foreign market in 1980. It is also significant to note that simultaneous with this increase, the percentage share that exports represent of total Japanese production was also expanding from 26.7% to 39.5%.

If these statistics are not alarming enough, while the Japanese share of the United States domestic machine tool market more than tripled from 1975 to 1980, the dollar value of Japanese exports into this country ballooned by nearly ten fold, from $47.3 million to over $471 million.

Finally, we should not fail to appreciate the types of machines that are being supplied to domestic customers by our Japanese competitors. (See Figure 4)

No big surprise here: lathes are still number one, and lathes and milling machine imports have nearly quadrupled. Grinding and polishing machine imports, gear-making machine imports, and metalforming machine imports, have all more than doubled in the last three and one-half years.

But the really big gainer is hidden in the "other metalcutting" category. In 1977 machining center imports were not considered important enough to even record. Today machining center imports total more than $105 million. They equal about one-third of the "other metalcutting" category. That makes machining center imports number five on the list just behind milling machine imports.

In sum, we are losing an increasingly larger share of our domestic machine tool market to Japanese imports each year. But perhaps even more distressing is the changing character of that market share which is increasingly comprised of more technologically advanced equipment each year. Perhaps this could have been expected, since the United States economy is the largest free market in the world. However, it is certainly a development which we can ill-afford to resign ourselves to.

Our industrial base is becoming dependent upon foreign sources for spare parts and service. During periods of mobilization in a national emergency this foreign source dependence could cause severe production problems and could seriously threaten our national security.

In the mid-1960's the American machine tool industry supplied about one-third of the global market. Today we supply approximately 15%.

We must take the actions that are necessary to make the machine tool industry more competitive in the world marketplace. This is a national security necessity, for we cannot be dependent on foreign machine tools any more than we can be dependent on foreign weapons.

Not only must we be competitive, we must be certain that we remain the world leader in technological innovation. But to continue to pioneer new technology requires ongoing and adequately financed research and development programs. Unfortunately, corporate fiscal pressures often result in R & D cutbacks in times of business retrenchment. Therefore, in order to insure that the technological innovation necessary to keep U. S. industry competitive in world markets continues to occur, it is imperative that the basic industries which foster such research remain healthy. In this regard, we commend the tax writing committees of both Houses of Congress for including in the legislation currently before these bodies provisions which will greatly facilitate increased research and experimentation.

In recent years there has been growing concern about the deterioration of the defense industrial base and the serious effect this could have on defense industrial production.

A report of the House Armed Service Committee has characterized our defense industrial base as crippled by declining productivity growth, aging facilities and machinery, shortages of critical materials, increasing lead times, skilled labor shortages, inflexible government contracting procedures, inadequate defense budgets and cumbersome government regulations and paperwork.

We commend the Reagan Administration and this Congress for the high priority which they are giving to this critically important area of national policy. Moreover, we believe that many of the policies which are needed to maintain an appropriate national defense posture are also those which will contribute greatly to revitalization of the U. S. economy.

II. BACKGROUND OF JAPANESE TRIP

From June 1st to 11th of this year, seven American machine tool executives, accompanied by 3 members of the NMTBA staff, conducted an intensive tour of seven Japanese machine tool and control plants along with several other Japanese manufacturing installations.

The members of our group brought to this mission varied backgrounds in the machine tool industry. Some of us were specially trained in management and manufacturing technology; some in sales and marketing; others in finance; and still others in engineering. My testimony today represents a compendium of what we saw in Japan this summer and our consensus as to what needs to be done by U.S. business and - secondly - by the U.S. Government, if our industry is to survive.

While it is dangerous to generalize from a short - albeit intensive visit, here, then, are our impressions of what we are facing from our Japanese competitors. At the conclusion of my testimony is an exhibit setting forth some of the more technical aspects of what we saw in Japan

III. ATTITUDE AND THE WORKPLACE ENVIRONMENT

Within a company, there exists only one attitude, namely that the company's welfare is the all-consuming objective. All workers, regardless of assignment, see the company's objectives in terms of growth, improved product quality and design, and reduced costs of manufacture, as their own objectives. Born on a series of islands which lack resources and space, the Japanese soon learn to accept life as an endless struggle for survival. A homogeneous group with a sense of strong family obligations, they perceive the communal approach as the only route -- which is to be pursued with an intensity not found in the West. Under the strong but gently applied leadership of an individual or family, the concensus approach universally applied is the driving force behind their success. Except for the top management, distinctions between management personnel and workers are minimal, sometimes designated only by markings on their caps. The company shopcoat is worn by all, as well as the cap, even by the directors who would be the equivalent of vice presidents in our companies.

Unions, where they exist in the metalworking world, are never adversary but rather fully cooperative. At present, they see their role as fully supportive of the company. The closest thing we saw to another point of view was in an assembly operation where the members of the union were wearing red scarves -- apparently as an admonition and a display for management of their strength and solidarity. We learned that there were soon to be discussions as to the size of the bonus for the year.

With this unique company spirit prevailing, the Japanese industrial success is not surprising. The striving for continued improvement dominates each operation. The final ingredient in the cementing of the relationship between management and labor is the granting of permanent employment status. The recruiting process is performed with great care. In most cases, the permanent employee status comes after a probationary period but in some cases it is immediate.

A comment needs to made relative to the skill of the Japanese management. First of all, the successful manager fully understands the Japanese psyche and every day builds on the basic loyalty each worker feels toward his company. Secondly, the successful manager displays a steadfastness of purpose, an unswerving devotion to the objectives, short-range and long-range, never displaying an air of superiority, and his sincere and skillful people-oriented approach is most effective in channeling the energy of all toward the company goals in a way seldom found in Western management.

IV. THE FACTORY OPERATION

The technical high schools produce high calibre individuals who quickly learn the details of the machine operations, including programming and maintenance. Typically, the factory organization is comprised of work groups with group leaders of approximately ten men each plus a supervisor over approximately five groups. Whatever the requirements to keep the machines running, this group somehow gets the job done. Most significant is the amount of productive time derived from each machine. In the plants visited, all machines were cutting metal almost without exception. Attention to the machines was 100%, each worker systematically performing his task. The work pace was not furious, but steady -- no coffee breaks, no group discussions -- just work.

In the better operations, machining centers with pallet changers served by carousels with up to twelve positions, frequently loaded with as many as six parts, or differenct configurations, were run in quantities of up to five by a single operator. It was not unusual that a bank of machines would be run unattended at night, the carousels being loaded with an adequate number of parts during the day operation. It appeared that machines were not at maximum feeds and speeds. Perhaps by design, the tools were not being pushed so that better tool life could be attained and the likelihood of breakage minimized. The operators seem to pay less attention to the cutting action and more to preparing the next workpieces on the pallets.

Turning cells running in a similar fashion were not prevalent. However, progress in this direction was evident in at least two factories where the use of a robot accomplished automatic loading and unloading of lathes so that one operator could run several machines.

Subassemblies seemed to be handled in a manner very similar to what would be found in any good machine tool plant. The care and attention to the quality of the product was impressive. As in all operations, the work effort was outstanding.

The lack of support people, as one would find in a typical U.S. plant, was evident. Stacker crane systems served by controls using punch cards were prevalent. Fork lift trucks were used but, beyond this type of support, there were no manufacturing engineering types, time study personnel, chip handlers, or cleaning people to be seen. It would appear that each man is fully responsible for the care of his equipment and his area. Timekeeping, if done at all, was on the basis of travelers which accompanied the work. We did see one punch card data collection system, but generally it appeared that production performance and control was predicated on the groups performing the task which each of them understood to be the objective.

The use of subcontracting for certain services was common. For example, the painting of the machines or the boxing of finished machines and the trucking operations were commonly delegated to other small companies or individuals. These appeared to be "good faith" arrangements rather than contractual. The subcontractors frequently worked only for the parent and were apparently completely subservient to his wishes.

We found no sophisticated production control system. The high rate of inventory turnover commonly found was based on the philosophy of production planning on a "just-in-time"basis. Fully automatic equipment provided the means. Everyone seemed to know his job and to be in touch with the requirements of the program. This, coupled with the fact that these were generally high volume operations with little customization, appeared to contribute significantly to the success of the program.

V. VOLUME PRODUCTION

Whether by luck of good timing or shrewd market analysis, the Japanese have captured a large percentage of the CNC lathe and machining center markets in the United States and, to some degree, in Europe and other industrializing nations. This has led to decisions to make whatever investments in plant and equipment that are deemed appropriate. Would any U.S. builder make the required investment in a conveyorized assembly system such as was found in Yamazaki, Okuma, and Mori Seiki -- or in a flexible manufacturing system (costing tens of millions of dollars) like the one under construction at Yamazaki?

In trying to understand these investment decisions, we found no evidence of detailed financial analysis or payback calculations. Whatever appeared to be the best (lowest cost) way to manufacture the parts was implemented without serious consideration of the payback period. All successful companies spoke of projected growth in years to come. It was this guiding principle which drove the engine of investment. They had plunged forward and done the things which we have all known for some time to be possible but have not had the courage to do.

VI. TECHNOLOGY - MANUFACTURING OPERATIONS

Nothing was evident which indicated a superior grasp of technology. What we saw was boundless energy and determination to put into practice the latest state of the art. For example, the operation of five pallet changers running diverse parts sequentially on each machine -- all tended by a single operator during the day shift and running unattended at night using sensors to detect problems -- is perfectly feasible and within the grasp of any manufacturing operation given reasonable technical talent. The Japanese have been willing to make the investment and go through the agony of start up.

The "unmanned" operation implies monitoring and sensors. Broken tool detectors, load limit settings for specific tools, and vibration analyzers, all well known devices, were being utilized. There was an admission that, at times, the "unmanned" machines often fell victim to a problem for which there was no programmed solution and, accordingly, had to be shut down.

Conveyorized assembly operations of machine tools implies a high degree of parts flow control and support systems (to say nothing of projected high volume). Return of pallets underground to starting position is nothing more than imaginative. All is within the known art.

VII. TECHNOLOGY - MACHINE DESIGN

The design of the machines seemed excellent and, in most cases, not cheap to manufacture. The quality of the workmanship on the individual parts was evident throughout, even to the uniformity of the broken or chamfered edges. The machine members carrying stresses seemed very adequate with no shortchanging of design. The gauge of the sheet metal guards often seemed heavier than was necessary considering its function. The quality of the painting (often done before final assembly) was excellent and resembled the appearance attainable with enamels.

Some innovative design for cost savings was found, but this was the exception. Solid design seemed to be the rule which, in some cases, had to require extra assembly hours. The use of roller packs, turcite, and the German epoxy seemed generally to parallel practice in the U.S.A.

VIII. MARKETING

The Japanese management has displayed a tremendous talent for marketing their products, particularly in the export markets. Most significant perhaps is their willingness to make the up-front investment in terms of marketing costs, establishing sales offices manned with sales and service engineers, investing in an inventory of finished products for quick deliveries, providing a stock of spare parts for immediate delivery, and mounting aggressive advertising campaigns. They are willing to match or better commission schedules to agents and distributors and foster sales by special treatment of special customers. The market is the only thing! They go after it in a very complete and professional way with no expense spared.

The decision on developing future products is made in several steps. A committee of sales people who gather on a continuing basis considers what is needed in the marketplace. They then make recommendations to the top management group, who review the suggestions and sort them out into an appropriate sequence. The president of one company acknowledged that this sorting out process is one of the most difficult management jobs he has.

There is still a question in the minds of the delegation as to whether the Japanese companies really followed a marketing plan to develop the whole world as a market, as they claim, or whether it just evolved that way and they capitalized on the evolution.

80% of one company's sales in Japan are done through agents and distributors. The companies back up the agents with their own engineers, just as we do in America.

Another firm added that it never sells direct in Japan, but always goes through agents or dealers. With financially weak customers, they go through trading companies. They, in turn, buy or finance the machines.

A controls manufacturer provides both the controls and drives in one package. This struck the group as a rather clever marketing scheme. An additional diagnostic package, to be mounted on the side of the machine with its own CRT, is a development that needs to be added by the machine tool builder, since the control company can decide not to develop the necessary software or to incorporate this system in its own control.

When dealing with large scale machine tool users in Japan, one company noted that it sold direct, bypassing the agent structure. For the medium and small-sized operations the firm generally worked through dealers.

This company's exports are largely concentrated in Europe rather than the U.S. In Europe, they work through foreign agents. In other countries throughout the world, they use Japanese agents. As to U.S. sales, one half goes through trading companies and the other half goes directly through typical U.S. agents.

One Japanese company does not incur the expense of export payment insurance, because it normally sells through a trading company and is not liable for the risk. Collection is the bank's problem, not the manufacturer's, because foreign sales are done on letters of credit.

Another company stated that it normally has no problem getting export licenses from the Japanese authorities and that once it gets a license it is firm. The company noted that it is complying with the rules of COCOM, as far as it knew.

IX. GOVERNMENT - BANK - INDUSTRY RELATIONSHIP

Much has been written on this topic but it is apparently, at best, imperfectly understood. While we uncovered little tangible evidence of the close relationship which is known to exist, it is perhaps best symbolized by the continuing presence of Japanese machine tool builders' employees working in the MITI building in the role of staff to MITI. These positions are filled on a rotational basis by members of the various machine tool firms. One could conclude that not much happens within the machine tool industry which is not known and perhaps tacitly approved by the Ministry in advance.

One can surmise that it is here that the long range planning and detailed marketing studies so characteristic of the successful Japanese machine tool industry take place. Decisions to invest in research and development and to make the major investments required very likely receive the blessings of all parties at this location.

A cartel covering all exports of NC lathes and machining centers was set up in March of 1978 in response to complaints at the rapid expansion of imports into the United

States. Export controls are established over pricing and the levels of exports. The principle of forceful presence of the government in the affairs of the industry is clearly illustrated.

It has been said that the appearance of the government power may be more important than what it actually does. In addition, personal relationships have existed between the politicians in the ruling Liberal Democratic Party, the bankers, and leading industrialists over the years.

While not all companies willingly follow the government policies, the requirement of export licenses in all cases forces the reluctant companies to conform.

One company reports to MITI on its studies for a national unmanned laser manufacturing project, but it receives no financing from MITI. The company is studying machine failure modes, which should be helpful in designing control systems and monitors.

One of the smaller machine tool builders noted that it receives no assistance from MITI's Mechanical Engineering Laboratories. An official of the company described it as a "bureaucratic organization of benefit only to the big companies -- not for small or medium-sized firms."

This company was in the process of building a new factory at the back end of its property. Among its reasons, it appears that the government is pushing the firm to develop better pollution controls. The delegation was not able to learn the nature of the problem.

It is clear that there is government aid available for a company who wishes to develop new products. In the opinion of one company, though, there is a great deal of red tape and documentation required, so it chooses not to use any government aid in its product development efforts.

The government requires a company to get a license for every machine it exports to prevent dumping. The governments makes sure that a sufficient price is being charged for machines and the only basis for license rejection is too low a selling price. One company noted that licenses have never been cancelled after being issued.

That company complained that the government "continually wastes time and is slow" to grant licenses. When asked about it, the representative elaborated that it can take three to four weeks to get an export license.

COCOM licensing can be much different matter, one company added. Licenses for the USSR take about one month for a 5-axis machine. The company added that the licenses may have been slow because it is located in the country. A 5-axis machining center may not be shipped from the U.S.; and the export licensing process takes months and even years in the U.S.

The group did find out that the Hungarians had been licensed to build a particular machine which would be in violation of COCOM. The Japanese machine tool company claimed that it was only an old model. Realistically, it appears that the technology will be sold to the Hungarians in contradiction to the direction of the COCOM regulations.

The regulations concerning what can and cannot be shipped to Communist countries are clearly printed for all machine tool companies. One company commented that it has never been denied an application, possibly because it does not ask for one if it thinks it may be turned down. U.S. licensing procedures are so rigid and complex that American companies are rarely asked to bid on Soviet business.

One company stated that it had reported to MITI about the plant for three years (concerning the machining monitoring associated with the laser project). MITI provided no financing for the plant, nor was involved in any other way in the construction.

Another machine tool firm commented that MITI Mechanical Engineering Laboratories work on a very academic level. They, therefore, do not provide much in the way of practical assistance to machine tool builders.

Still another company noted that it is working with the government on the FMF (Flexible Manufacturing Factory) National Project. Compared to the past, however, the firm's involvement with the government in R&D activities is becoming smaller and smaller. Occasionally, there is government assistance on some specific projects, but not currently for this company. Its R&D efforts are now totally company-oriented.

According to another company, they have no collaboration with MITI's Mechanical Engineering Lab. They explain that whatever develops there is available for all on the basis of publication.

One machine tool builder which is doing a great deal of research and development on FMS stated that it gets no assistance from the outside, nor does it seek any.

Still another company adds that it has absolutely no relationship with the government's Mechanical Engineering Laboratory.

In general, there appears to be a much more favorable relationship between government and industry in Japan than in the U.S. By comparison, the U.S. government's actions in antitrust and income tax matters act as a deterrent to the expansion of industry.

The bank - industry relationship is a strong one. Banks often move their own personnel into positions of control within a company if things are not going to their liking. Their strong presenc [illegible] ither as major shareholders or major lenders to the companies, leads to encouragement of an expansionary policy since it is by commercial activities that the banks gain their success. It is not hard to see how the poor shareholder is relegated to a back seat under such a structure.

To this powerful working relationship between government, banking, and industry, one must add the trading company to complete the picture. Trading companies are major factors in the development of export trade. The smaller companies are forced to use them exclusively. It is the trading company which bears the financial risk for overseas transactions, although letters of credit payable in yen are used extensively. As a result of their power, it can be assumed that they play a major role in market strategy in concert with the group. Legislation facilitating American export trading companies has unanimously passed the Senate. Its early adoption by the House is imperative to U.S. competitiveness.

X. SUMMARY

There is much in Japan which can be transferred to the U.S.A. Clearly the most impressive is their people-oriented style of management. While our work environment is sociologically different and would not digest the Japanese style, the underlying practice of sincerity in communication with and participation by the work force in the work place activities is a valid and necessary objective for our managements.

As for the manufacturing technology, "just-in-time" production, and automatic flexible machining, etc., it can be done and probably will lead to optimizing not only factory performance but financial performance as well.

Compared to other industries, the American machine tool industry is very small. Our industry contains a large number of very small businesses. There are only nine establishments with 1,000 or more employees and only 36 employ 500 or more.

In addition to the unique industry structure, other major factors influence the industry and its ability to respond to mobilization.

The highly cyclical demand for machine tools limits our industry's decisions to invest in expansion of capacity. In spite of this, the machine tool industry has increased capital investments 30% per year for the past five years. However, this is insufficient to meet mobilization requirements or to compete with what we saw in Japan.

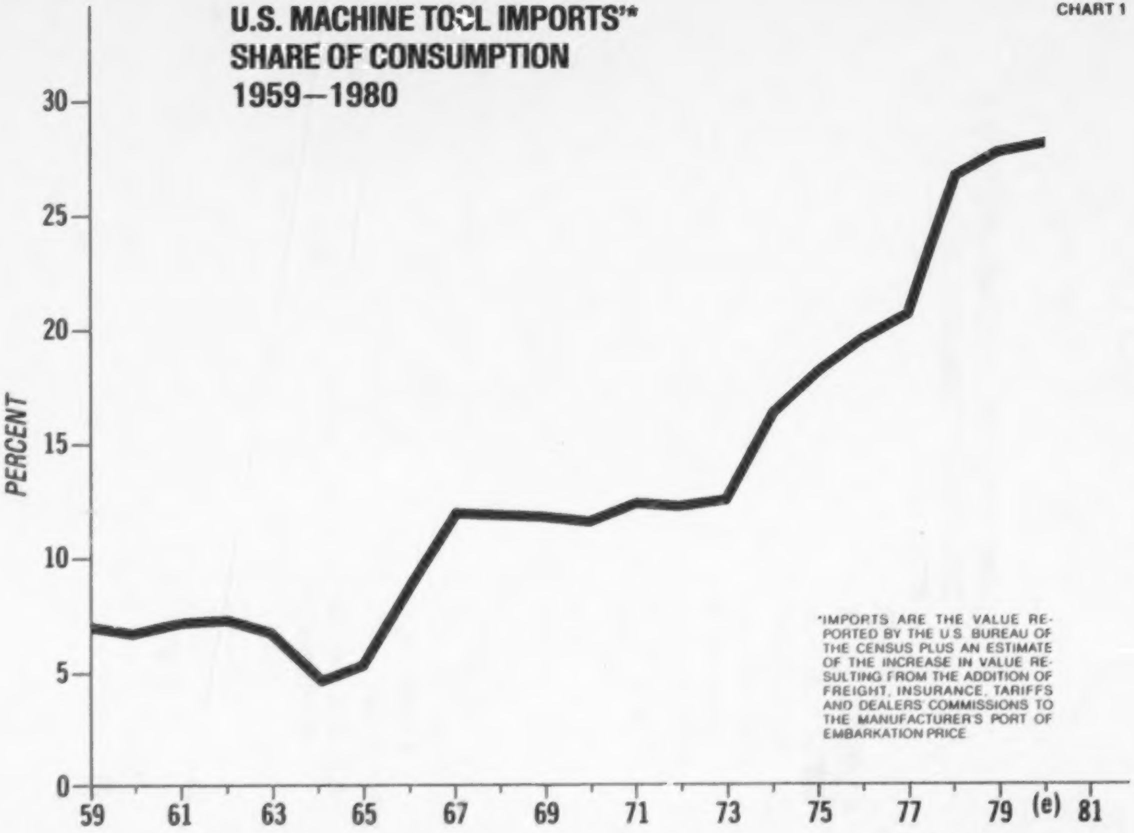
We must provide a tax system that will promote the capital investments that are needed to quickly improve America's lagging productivity. Both the tax bill recently adopted by the Senate and the combination of expensing capital assets and corporate rate cuts under consideration in the House will accomplish this result.

An increase in U.S. manufacturing productivity will have a tremendously beneficial impact on the standard of living of the American people. Our sagging productivity is a major cause of America's economic stagnation, and a major contributor to inflation. Cost reductions in manufacturing products are best achieved through better machines, equipment and tooling.

The steady decline in American productivity the last 10 years endangers our ability to generate new wealth at home and undermines our competitive position abroad. With prompt concerted action taken by government, industry and labor to reverse this trend, we can do the job. Given the proper climate and the chance to compete on fair terms, we can meet the Japanese challenge.

CHART 1

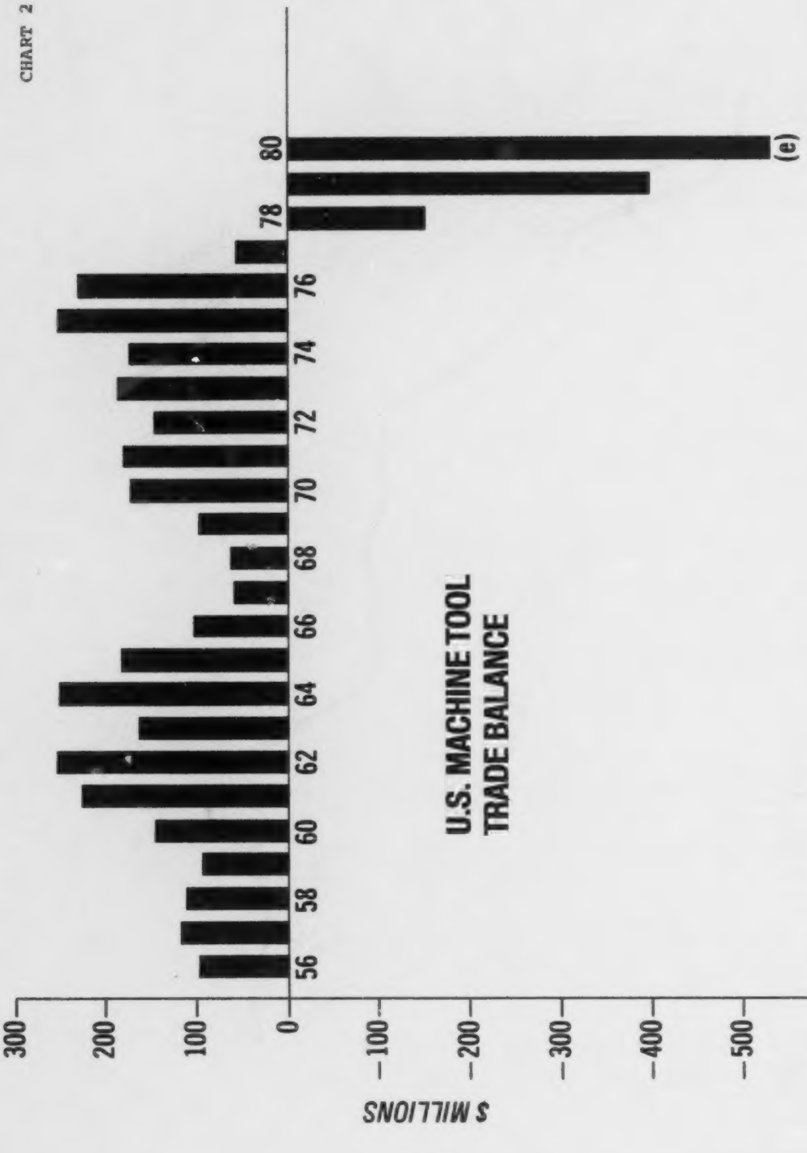
U.S. MACHINE TOOL IMPORTS* SHARE OF CONSUMPTION 1959—1980



*IMPORTS ARE THE VALUE REPORTED BY THE U.S. BUREAU OF THE CENSUS PLUS AN ESTIMATE OF THE INCREASE IN VALUE RESULTING FROM THE ADDITION OF FREIGHT, INSURANCE, TARIFFS AND DEALERS' COMMISSIONS TO THE MANUFACTURER'S PORT OF EMBARKATION PRICE

SOURCES: NMTBA
U.S. CENSUS BUREAU

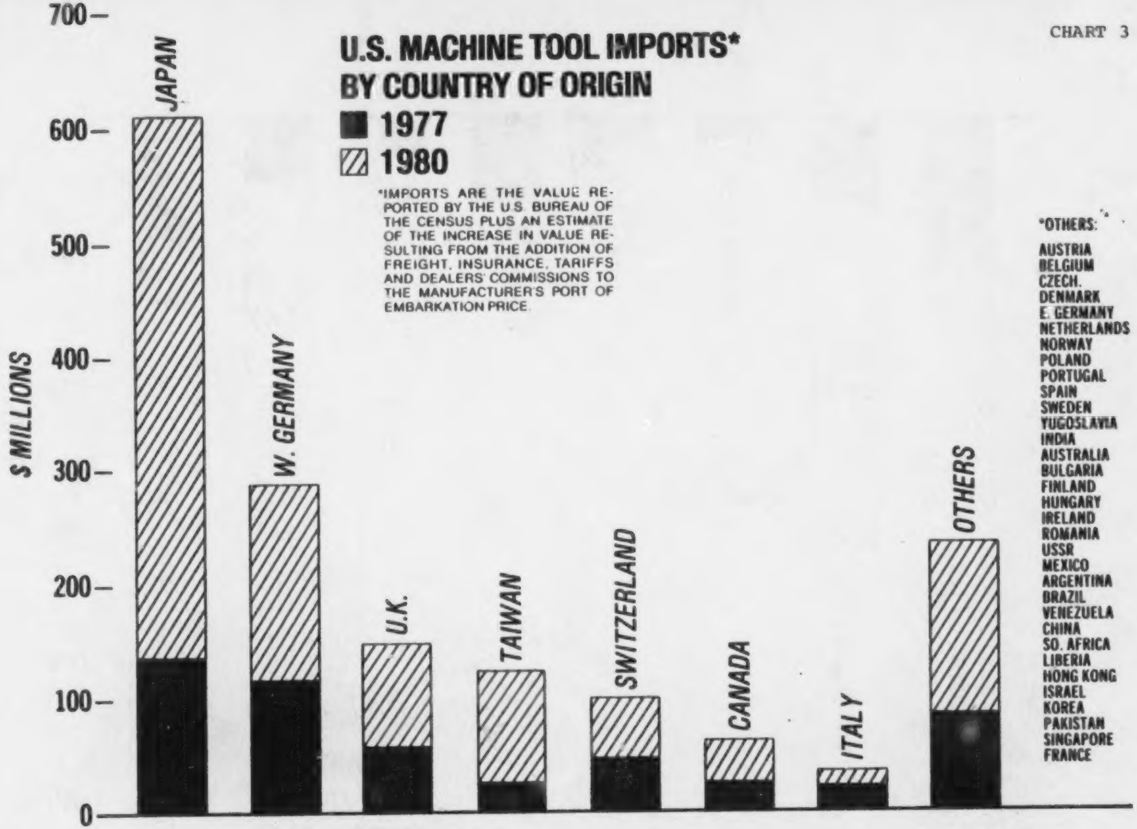
CHART 2



U.S. MACHINE TOOL TRADE BALANCE

SOURCES: NMTBA
U.S. CENSUS BUREAU

CHART 3



U.S. MACHINE TOOL IMPORTS* BY COUNTRY OF ORIGIN

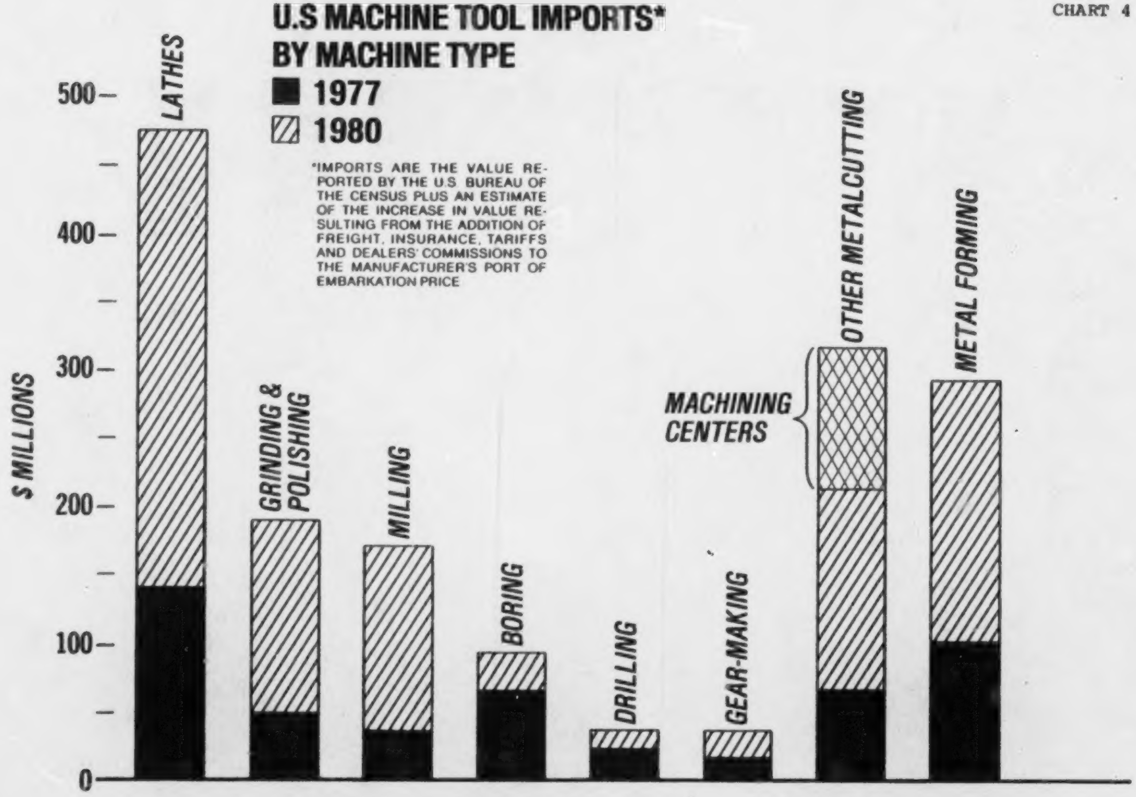
*IMPORTS ARE THE VALUE REPORTED BY THE U.S. BUREAU OF THE CENSUS PLUS AN ESTIMATE OF THE INCREASE IN VALUE RESULTING FROM THE ADDITION OF FREIGHT, INSURANCE, TARIFFS AND DEALERS' COMMISSIONS TO THE MANUFACTURER'S PORT OF EMBARKATION PRICE.

*OTHERS:

AUSTRIA
BELGIUM
CZECH.
DENMARK
E. GERMANY
NETHERLANDS
NORWAY
POLAND
PORTUGAL
SPAIN
SWEDEN
YUGOSLAVIA
INDIA
AUSTRALIA
BULGARIA
FINLAND
HUNGARY
IRELAND
ROMANIA
USSR
MEXICO
ARGENTINA
BRAZIL
VENEZUELA
CHINA
SO. AFRICA
LIBERIA
HONG KONG
ISRAEL
KOREA
PAKISTAN
SINGAPORE
FRANCE

SOURCES: NMTBA
U.S. CENSUS BUREAU

CHART 4



U.S MACHINE TOOL IMPORTS*
BY MACHINE TYPE

*IMPORTS ARE THE VALUE REPORTED BY THE U.S. BUREAU OF THE CENSUS PLUS AN ESTIMATE OF THE INCREASE IN VALUE RESULTING FROM THE ADDITION OF FREIGHT, INSURANCE, TARIFFS AND DEALERS' COMMISSIONS TO THE MANUFACTURER'S PORT OF EMBARKATION PRICE

SOURCES: NMTBA
U.S. CENSUS BUREAU

Japanese Export Statistics EXHIBIT 1

1975 - Japan's top ten machine tool export markets comprised 69.3% of the value of total exports. These were:

	Country	(millions of dollars) Value of Exports	% of Export Total
1)	USA	$47.3	22.8%
2)	Rep. of Korea	27.7	13.3
3)	PRC	10.7	5.2
4)	Brazil	10.4	5.0
5)	Taiwan	10.1	4.9
6)	Australia	8.4	4.0
7)	W. Germany	8.2	3.9
8)	Sweden	8.0	3.9
9)	U.K.	7.9	3.8
10)	Singapore	5.3	2.6
		$144.0	69.3%

1975 exports were 26.7% of Japanese production.

1980 - Japan's top ten machine tool export markets comprised 77.9% of the value of total exports. The top ten were:

	Country	(millions of dollars) Value of Exports	Growth*	% of Export Total
1)	USA	$471.1	58%	39.6%
2)	W. Germany	99.3	65	8.4
3)	U.K.	64.4	52	5.4
4)	Rep. of Korea	55.1	15	4.6
5)	USSR	53.4	34	4.5
6)	Taiwan	51.0	38	4.3
7)	S. Africa	39.5	57	3.3
8)	Belgium	34.4	NA	2.9
9)	France	28.9	NA	2.4
10)	Australia	28.5	28	2.4
		$925.6	45%	77.9%

1980 exports were 39.5% of Japanese production.

* Average annual growth rate for years 1975 to 1980.

Source : Japanese Tariff Association

Spring 1981

EXHIBIT 2

TECHNICAL OBSERVATIONS MADE DURING
NMTBA MISSION TO JAPAN
JUNE 1 - 11, 1981

AUTOMATION

One company visited had built a new 200,000 square foot facility that was then six months old. It was already in operation with a full day shift and second and third shifts, which eventually will have only one employee in the entire plant.

This worker functioned as a combination machine watchman, plant watchman and guard. Each machining cell has a television monitor camera connected to the central computer room, so that the watchman can view the machines in operation.

At another plant, a computer-aided electrical circuit design system was in use, with an automatic drafting machine which produced electrical and mechanical drawings.

Currently, this company gets 1.2 shifts of unmanned output for each shift of manned output. The goal being sought is a ratio of 1.5 to 1.

Some Japanese users of Flexible Manufacturing Systems (FMS) are getting 6800 hours of uptime with one labor shift. This is 70% to 80% of maximum potential machine utilization, since there are 8760 hours in one year.

At several companies there were carousel fed machining centers equipped with six or more pallets. These pallets were automatically loaded and unloaded. The concept of carousels with pallets proved prevalent at many of the factories visited.

One machining center control contained a tool monitor device which monitored about twelve different tools. For each tool, a load threshold had been set, as determined by sensing the current drawn by the spindle motor. If this value is exceeded,an alarm would sound. This machine was run at night on an unmanned basis.

At one company, a number of machines in the tooling area had automatic loading and unloading equipment and gauging. There did not appear to be a great deal of worker activity in that area. This was rather surprising, when compared with what the delegation saw in other Japanese machine tool assembly areas.

ROBOTICS

One firm has built a new plant principally for the manufacture of robots. It plans to double its output by September. It is assumed that this planned increase will be attained with the use of robots to make robots. Machine tool production also takes place in this plant, but as robot production increases, the machine tool assembly will be moved elsewhere. The company announced plans to develop assembly robots and "intelligent" robots in the future. Workers displaced by the robots will be transferred to the company's new motor line.

According to this firm, its robot design is strictly limited to operating with lathes and machining centers. It is intended strictly to remove or replace one part with another and to take it from one location to another. The company said it has no intention of getting into the welding business or welding applications.

Another company states it has no plans to build robots, but will continue to incorporate a robot every now and then in connection with pallet loading and unloading. The firm believes that the whole discussion about the growth of robot use is greatly overstated. They feel that robots will move into operations much less rapidly than people assume.

Asked about all the robots that the Japanese are allegedly using, a company official said, "We never see any robots ... the definition of a robot is hard to handle because some are very simple and do only specialized tasks, while others use microcomputers and are very sophisticated. We have no idea where these robots are working.".

During one plant tour, the group observed a CNC turning machine with a $18,000 robot attached to it for automatic part loading and unloading. Some thirty of these robotized machines have been manufactured and sold.

One company said it has no plans to develop its own robot. They ship a few machines each month with someone else's robots on them, but they do not think that robots are a significant requirement for CNC lathes.

FLEXIBLE MACHINING SYSTEMS

One company claimed to have already produced 20 FMS units. By its definition, however, a flexible machining system could be as few as two machines and as many as 13.

When asked whether they thought the FMS approach could be used for round parts, the company representatives said "yes". They said they liked the idea, though they had no comprehensive plans at present to implement it.

At one company, the delegation saw a $4 million flexible machine line that will be installed at a Cincinnati manufacturing plant. It features two large machining centers, complete with tool changers. Five or six additional tool drums were stored in a rack behind the machines.

At the proper command, they could be installed in position on the machines after removing the previous drum of tools. Each drum can hold 24 tools. Tools could either be pulled in and out of a drum or the entire drum could be removed from the rack for replacement in a control room.

In front of the machining centers were rotary tables alternated with fixed pads, arranged so the two machines can operate over a distance of 60 to 80 feet. The total number of work holding positions was six.

The system is operated by a control room using a special DNC type computer tied into an IBM 370. The company appears to be planning to build a reputation based on this installation, to then sell this type of system all over the world.

The group visited this company's new flexible manufacturing system building, estimated to be an investment of more than thirty million dollars.

Two parallel lines of machining centers are positioned to be served by pallet changers. The changers are served by a conveyor system which runs back and forth on a little truck that feeds loaded pallets to the pallet changer at the desired locations.

Each machine has its own CNC control and there is an overall DNC control in the control room which apparently runs the whole system. The tools can be removed and returned automatically by an overhead conveyor to positions on the machining centers. Next to the control room is another room in which the tools can be reset or replaced.

The tools are set to designated positions in the drum and all this information is retained in the DNC control. Each machine is equipped with adaptive control, designed to indicate broken tools.

It is anticipated that seven men will run this total system on the day shift, seven on the night shift and then none on the third shift. There is an additional area on the side where pallets can be stored in loaded or unloaded positions for that third shift. The computer would know these positions, so that parts and pallets could be pulled and delivered as required.

The group observed that the elements in this system employ known technology and equipment. What is overwhelming is that this company was willing to make this investment in a total system, despite the high quality of their current manufacturing of cubes. This firm has announced it is going to become the world's largest machine tool builder. The strategy behind this total system apparently is to minimize the cost of manufacturing parts and to induce others around the world to buy a comparable system.

The system will be able to do some measurement on the machines, sense tool breakage and have a tactile sensing device for the location of parts. Spindle tool overload for specific tools will be measurable. The company believes the same basic system can be applied to turned, round parts, but they are not very far along with this development. The representative indicated that such a system might incorporate grinders.

The system was designed by 20 engineers over the course of one year. Six months were then required for the mechanical end of the system and another nine months for the development of the software. The system is expected to be operational by the end of 1981.

STATEMENT BY
W. PAUL COOPER
CHAIRMAN OF THE BOARD
ACME-CLEVELAND CORPORATION
BEFORE THE
SUBCOMMITTEE ON INTERNATIONAL FINANCE
COMMITTEE ON BANKING, HOUSING AND URBAN AFFAIRS
UNITED STATES SENATE
FEBRUARY 18, 1981

I. INTRODUCTION

Good morning, my name is W. Paul Cooper. I am Chairman of the Board of Acme-Cleveland Corporation. Accompanying me today is Mr. James H. Mack, Public Affairs Director of the National Machine Tool Builders' Association (NMTBA), the national trade association of which Acme-Cleveland is one of over 400 member companies.

Although we are of course pleased to be of service to this Subcommittee, we are here today with somewhat mixed emotions in that it was nearly a year ago that we appeared before a similar panel in the other house. At that time, we conveyed nearly the same message that we will convey to you today. Improved export policy is an area of vital interest to both my own corporation and the U.S. machine tool industry as well as the U.S. economy generally.

The legislation which we will be commenting on today, Sen. Heinz' bill, S. 144, is very similar to the legislation which this Subcommittee reported last year, S. 2718. We strongly supported that legislation, and we strongly support this year's bill. At this time we would like to address some of the objections raised to last Congress' legislation, S. 2718, in the hopes of allaying the fears of those who attempted to block export trading company legislation during the 96th Congress.

To some extent this may be preaching to the choir. The Senate passed S. 2718 during last Congress by an overwhelming vote of 77-0. Nevertheless, we believe it is important to reiterate the reasons why export trading companies are of vital importance to our national interest, in order that a strong and complete record might be built upon which to base passage of export trading company legislation early in the first session of the 97th Congress. Specifically, we would like to particularly emphasize the importance of drafting this legislation so as to allow U.S. banking institutions to become directly involved as integral parts of export trading companies. Of course, as we are all aware, it was the inclusion of such direct banking involvement provisions in last year's bill which unfortunately blocked passage of ETC legislation in the House of Representatives, even after the Senate had overwhelmingly passed S. 2718. For this reason, we believe it is even more imperative this session of Congress that the Senate take an early an aggressive lead in developing and passing export trading company legislation, in order that the objections raised to S. 2718 last year, which will undoubtedly again be raised to S. 144 this year, will be addressed so as to develop a consensus which will ultimately lead to enactment into law of this vitally needed export trading company legislation.

Again, for the sake of completeness of the record, before proceeding with my comments, we would first like to briefly outline Acme-Cleveland's activities in the metalworking manufacturing industry, as well as the corporation's recent experience in the export market.

Acme-Cleveland, a New York Stock Exchange listed corporation, has existed in its present form since 1968. However, several of its predecessor companies and present major components have long histories in the industry, dating back over one hundred years in some cases. The corporation is in the business of manufacturing the tools of metalworking productivity: machine tools, cutting and threading tools, foundry tooling and equipment, electrical and electronic controls, and automated production systems. Currently, these products, including replacement parts, are manufactured by six operating divisions, supported by two service companies with a combined domestic employment of approximately 5,700 workers.

In addition to these domestic U.S. operations, Acme-Cleveland also consists of a number of foreign subsidiaries. Finally, relationships with several foreign licensees and one overseas joint-venture round out the corporation's worldwide business activity.

Acme-Cleveland views foreign trade as an extremely significant part of what has come to be recognized as a worldwide machine tool market. Even prior to Acme-Cleveland's worldwide expansion, several of its predecessor companies enjoyed long and active involvement in foreign trade. A high point of this foreign activity occurred in 1975 when over one fifth (21.5%) of Acme-Cleveland's domestic production had its destination in the export market. Unfortunately, however, even with an overall increase in total business volume there has been a steady decline in export sales, until in 1979 only 6.0% of domestic production was shipped overseas, for an annual average of 10.3% for the years 1975 through 1979.

Shifting from my own corporation's experience to that of the industry generally, it is important to point out that while the domestic U.S. machine tool market has been oscillating with very little real growth since the middle 1960's, the world market has grown substantially. Unfortunately, most of this worldwide expansion has been absorbed by our foreign competitors, eroding our market share.

In the middle 1960's, the American machine tool industry supplied approximately one-third of the total global market. In other words, one out of every three machine tools consumed in the world was produced by an American machine tool builders. However, according to American Machinist, as of the end of 1979, that portion had fallen to only 17.1%. In short, over the past 13 years, our share of the world market has plummeted by almost 50%.

This dramatic decline is the result of two factors. First, our domestic market has been invaded by foreign competitors on a scale never before dreamed of. For example, since 1964, America's imports of foreign machine tools have more than tripled, growing from 7% of total consumption 15 years ago to over 25% in 1980. It is obvious that, because the United States is the largest open machine tool market in the world, our foreign competitors have pulled out the stops and are aiming their export marketing efforts directly at America.

Second, and this is the aspect that we wish to focus on at this time, our share of the export market has also declined. When we look at the dollar value of our exports, the results of our efforts look encouraging. But if we look at American exports as a percentage of all of the machine tool exports in the world, the results are indeed very discouraging. We have been losing export market share at an alarming rate. Our share of the world's machine tool exports fell from 21% in 1964 to just 7% last year, placing us well behind West Germany and Japan as a machine tool exporting nation.

Finally, and perhaps most alarmingly, in 1978 the United States suffered its first machine tool trade deficit in history, with imports exceeding exports by some $155 million. And, to make matters even worse, this deficit trend continued through 1980. Even though our exports grew by 15.8% over 1978 levels, imports soared by more than 45% to produce an even larger trade deficit of almost $400 million in 1980.

The National Machine Tool Builders' Association is a national trade association representing over 400 American machine tool manufacturing companies, which account for approximately 90% of United States machine tool production. Although the total machine tool industry employs approximately 110,000 people with a combined annual output of around four billion dollars, most NMTBA member companies are small businesses with payrolls of 250 or fewer employees.

While relatively small by some corporate standards, American machine tool builders comprise a very basic segment of the U.S. industrial capacity, with a tremendous impact on America. It is the industry that builds the machines that are the foundation of America's industrial-military strength. Without machine tools, there could be no manufacturing; there would be no trains, no planes, no ships, no cars; there would be no power plants, no electric lights, no refrigerators and no agricultural machinery.

II. NATIONAL MACHINE TOOL BUILDERS' ASSOCIATION EXPORT PROMOTION ACTIVITIES

NMTBA and its member companies have devoted considerable time and effort to increasing exports.

NMTBA, on behalf of the American machine tool industry is devoting its own resources to the development and maintenance of international markets everywhere in the world. The Association has two people who spend virtually their full time overseas promoting United States machine tool exports with considerable assistance from the Department of Commerce.

NMTBA develops seminars and workshops to train our members' people on international financing, export licensing, or any other subject that will benefit a machine tool builder. We conduct market research to locate new and promising markets for industry development. We have conducted roughly thirty Industry Organized, Government Approved (IOGA) trade missions to help gain a foothold in these new markets, and approximately half a dozen are planned for 1981 and 1982. We sponsor foreign exhibitions so that our members will have more opportunities to display their products overseas. In addition, we often work in close conjunction with the Commerce Department on such activities as recruiting exhibitors for export promotion events such as catalog shows, video tape shows and technical seminars. We organize reverse trade missions to bring foreign buyers to our plants. And we bring large groups of foreign visitors to the International Machine Tool Show in Chicago every two years. The Commerce Department has worked closely with us in the development and implementation of these programs, as have the commercial officers in our embassies and trade centers around the world.

III. BANK INVOLVEMENT IN EXPORT TRADING COMPANIES

In an economy which has until only recently been primarily oriented to the domestic market, it is not hard to understand why export trade has been deprived of significant financial resources. Because of such an overwhelmingly domestic orientation, the investment and entrepreneurship to establish export trading companies on an economical scale has been difficult.

With a gigantic domestic market to produce for, many American businessmen have shyed away from what they often perceive to be the complex world of international trade. While countries like Canada export 25% of their gross national product, Germany 22.6%, and the United Kingdom 23%, the U.S. consumes all but 7.5% of domestic production. Recent statistics indicate that only 8% of this country's 250,000 manufacturers ship their goods abroad and, of those, a mere 100 industrial giants account for more than half of all U.S. exports. And while it is true that our enormous trade deficit is caused primarily by oil imports, it is striking to note that had we maintained the share of manufactured exports that we enjoyed in 1960 we could be paying for our oil bill in 1981 without a trade deficit. Since 1960, the U.S. share of manufactured exports has slid from 22.8% to 17.4% of the world total.

We, therefore, commend you Mr. Chairman for your sponsorship of S. 144, a bill designed to stimulate exports, by spurring the creation of large scale American trading companies that would provide a much needed export vehicle for small and medium-sized businesses, and also facilitate joint-ventures and barter deals by already big exporters. To accomplish these goals, S. 144 attempts to stimulate initiative from at least three possible sources: (1) accelerated internal growth by existing U.S. export management or export trading companies; (2) formation of independent export trading companies fostered by major corporations with international trade experience; and (3) investments by U.S. banking institutions in new or existing export trading companies. This third source of increased stimulus -- specifically the provision that banks may have ownership participation in export trading companies -- is the aspect of the bill which has been the most controversial and has drawn the criticism of those who believe that commerce and banking should continue to remain separate activities.

Presumably, this legislation was inspired to some extent by Japanese "sogo shosha", multi-billion dollar trading conglomerates with huge asset bases and close ties to government, bankers and manufacturers. These "sogo shosha" in addition to their trading companies, each have numerous subsidiaries in such areas as autos, steel and textiles. The trading arm in turn has its own subsidiaries in manufacturing, farming and resource development, and it draws on the entire conglomerate organization for products to sell and for assistance in financing them.

Moreover, the trading company isn't limited to its organization. It will also buy or sell products from any other source wherever it finds the opportunity. With some 80,000 employees spread around the globe drumming up billions of dollars worth of business, the "sogo shosha" as a group account for more than 50% of Japan's exports and imports, and 30% of GNP.

Because fundamental differences between our two societies should discourage the belief that America can or should attempt to duplicate the Japanese model for its own economy, we concur in the belief of most trade experts that the U.S. must develop its own brand of trading company that is consistent with our nation's tradition of competitiveness rather than consensus. This, we believe, is what S. 144 is designed to do.

We believe that banks can bring not only financial resources, but almost all of the supporting facilities and services which U.S. exporters now most lack by contrast with their foreign competitors. They will make it possible for American companies to combine their resources in a variety of ways and configurations in the interest of more competitive overseas marketing of American products and services. More importantly, banks can encourage and help exporters develop a long term view of, and presence in, export markets. Moreover, bank affiliated trading companies would have special effect on encouraging more medium and small exporters who are now discouraged by the remoteness and strangeness of foreign markets and buyers, exchange risks, and by the complexity and expense of documentation.

Although NMTBA supports the general principal of separation of banking and commerce, we believe there is good, sufficient, and, indeed, compelling reason to make an exception on a controlled basis for limited and conditional bank ownership of export trading companies in order to strengthen U.S. capacity to meet non-traditional international trade competition. Moreover, we further believe that as drafted, S. 144 contains prohibitions, restrictions, limitations, conditions and requirements more than ample to meet each of the objections raised concerning bank ownership of export trading companies.

In our view, any legislation purporting to encourage U.S. exports through the facility of export trading companies, which does not permit bank participation and (in some cases) the right of bank control is only a half step. Adequate financing is one of the most critical elements of export promotion.. To continue to prohibit bank participation in export trading companies is to continue a halfway policy of half steps leading to halfway results.

In this regard, the following comments are addressed to the specific requirements of S. 144 which we believe are the most advantageous provisions concerning direct bank involvement in export trading companies.

A. PROVISIONS DESIGNED TO PROTECT THE FINANCIAL INTEGRITY OF BANKS PARTICIPATING IN ETCs

Title I of S. 144 contains numerous provisions which are specifically designed to safeguard the financial integrity of banks. By definition, the bill precludes export trading companies from being used as vehicles for investment in domestic industries. Furthermore, U.S. government banking regulatory agencies would have clear authority to prevent ETCs from violating this restriction, since any significant investment by bank-owned ETCs would require prior approval from these agencies.[1]

---

[1] Senate Bill 144, Sec.103 (a)(9) states: the term "appropriate Federal banking agencies" means - (A) the Comptroller of the Currency with respect to a national bank or any District bank; (B) the Board of Governors of the Federal Reserve System with respect to a State member bank, bank holding company, Edge Act corporation, or Agreement Corporation; (C) the Federal Deposit Insurance Corporation with respect to a State non-member insured bank, except a District bank; (D) the Federal Home Loan Bank Board with respect to a Federal savings bank.

Additionally, the many safeguards against undue risks by bank-owned ETCs will insure against the type of public policy concerns which have traditionally been associated with bank involvement in non-banking activities. Moreover, S. 144 has adopted the specific recommendations of the Federal Reserve by incorporating the same restrictions contained in Sec. 23A of the Federal Reserve Act.[2]

Specifically, Sec. 105 of S. 144 contains the following general guidelines for bank involvement in ETCs:

> (1) Banks may invest up to an aggregate amount of $10 million in one or more export trading companies without prior approval of the appropriate federal banking agency, if such investment does not cause an export trading company to become a subsidiary of the investing bank.
>
> (2) Banks may make investments in excess of an aggregate amount of $10 million in one or more export trading companies or make any investment which would cause an export trading company to become a subsidiary or which would cause more than

---

[Moreover] In any situation where the bank organization holding or making an investment in an export trading company is a subsidiary of another banking organization which is subject to jurisdiction of another agency, and some form of agency approval or notification is required, such approvals or notifications need only be obtained from or made to, as the case may be, the appropriate Federal Banking agency for the banking organization making or holding the investment in the export trading company.

[2] Sec. 23A of the Federal Reserve Act generally prohibits member banks from lending or investing more than 10% of their capital and surplus in any one affiliate, and more than 20% of their capital and surplus in all affiliates.

50% of the voting stock of the export trading company to be owned or controlled by the bank only with the prior approval of the appropriate federal agency.

(3) The total cost of the direct and indirect investment by a bank in an export trading company combined with extensions of credit by the bank to the trading company shall not exceed 10% of the banks capital and surplus.

(4) Appropriate federal banking agencies may impose such conditions as they deem necessary to limit a banking organizations financial exposure to an export trading company or to prevent possible conflicts of interest or unsound banking practices.

(5) And finally, nothing in this bill would in any way prevent any state from adopting a law prohibiting banks chartered under the laws of such state from investing in export trading companies or applying conditions, or restrictions on investments by banks chartered under the laws of such state in export trading companies in addition to any conditions, limitations, or restrictions provided under the federal law itself.

B. PROVISIONS DESIGNED TO PROTECT AGAINST UNFAIR COMPETITIVE ADVANTAGES BY BANK-OWNED ETCs

In addition to expressing concerns about the potential for impairment of the financial integrity of banking institutions, critics of direct bank involvement in ETCs also expressed the fear that bank-owned ETCs will have unfair competitive advantages over ETCs owned by non-banking firms. Additionally, there is the worry that big banks and big companies would form joint-ventures, increasing what some perceive as an already dangerous trend toward concentration of economic power. However, to allay these fears S. 144 contains provisions which will specifically ensure that such unfair competitive circumstances will not develop.

Under S. 144 bank-owned ETCs will be much more heavily regulated than ETCs owned by non-banking firms. The legislation specifically prohibits banks and their affiliates from making preferential loans to any ETC in which they have an equity interest, including customers of any such ETC. Specifically incorporating the request of the Federal Reserve, S. 144 prohibits a banking organization or any of its affiliates from extending credit "to an export trading company or to customers of such company on terms more favorable than those afforded similar customers under similar circumstances, and such extension of credit shall not involve more than the normal risk of repayment or present other unfavorable features."[3]

Moreover, prohibitions on direct bank involvement in ETCs will put banks (of all sizes) at a serious disadvantage with so-called "near banks" (such as money market mutual funds), since under such restrictions near banks would be allowed to invest directly in ETCs while regular banks would not. And perhaps most importantly from a competitive perspective, with over 1,400 banks in the United States (certainly not all of which will be investing in ETCs) there will be more than ample financing alternatives for non-bank owned ETCs.

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[3] Senate Bill 144, Sec. 105 (c)(4).

Certainly, if the risks of direct bank involvement in ETCs were so great there should be an experience of foreign failures resulting from unwise operation of trading affiliates. Instead, the reverse appears to be true. Therefore, we see no reason why if foreign banks can manage these risks, U.S. banks, which would be under the close scrutiny and supervision of numerous federal regulatory agencies, would not be able to do so also.

C. CURRENTLY EXISTING EXPORT MANAGEMENT FIRMS AND FINANCING ALTERNATIVES ARE INADEQUATE TO COMPETE EFFECTIVELY WITH FOREIGN BASED EXPORT TRADING COMPANIES

Finally, opponents of direct bank participation in export trading companies have alleged that such vehicles as are proposed by S. 144 are not needed, because there are already existing export management firms or brokers which can adequately handle the needs of U.S. exporters. More specifically, it has also been argued that there is no need for direct bank participation in ETCs because the Export-Import Bank of the United States (Eximbank) already is capable of meeting the financial needs of U.S. exporters. In response to these two erroneous contentions we would point out that although the Department of Commerce estimates that there are about 3,800 export management firms or brokers in the United States, most are quite small (92% employing fewer than 5 people). Moreover, these firms normally limit themselves to a specific product line for a geographic area. Additionally, it is also very important to note that one of the major reasons these firms have not continued to grow is that they are normally severely under-capitalized. Banks as a result are unwilling to give them substantial lines of credit. While Japanese trading companies have debt/equity ratios of 15 or 20 to 1, small U.S. companies cannot operate anywhere near that level.

Addressing the argument that bank-owned ETCs are not necessary, because the Eximbank is already capable of providing sufficient export financing assistance, we begin by pointing out that Eximbank is an independent agency of the U.S. Government that works in cooperation with commercial banks to provide special financing services for U.S. exporters. In contrast, bank-owned export trading companies, as foreseen by S. 144, would be private entities with the internal ability to both finance and market goods in foreign commerce. While in no way deprecating the important role that Eximbank plays in furthering U.S. exports in world markets, it is obvious from the above two descriptions that the Eximbank and bank-owned ETCs are generically dissimilar entities with different goals and objectives. Simply stated, Eximbank is designed to offer targeted government financial assistance in special exporting circumstances, whereas bank-owned ETCs would provide U.S. exporters with a one-stop financing and marketing package designed to address a much broader range of export trade opportunities.

However, one response to this position has been to suggest that many, if not all, of these advantages are already currently available via Eximbank assistance, with the supposedly logical conclusion being that there is no need currently unfulfilled by Eximbank to be met by bank-owned ETCs.

Admittedly, Eximbank has a financing network with hundreds of U.S. and foreign financial institutions. Nor is there disagreement that these close working relationships have made it possible to further extend Eximbank's resources in cases where it is critical for American exporters to be able to offer financing which is competititve with that available to government-leveraged foreign sellers. However, although Eximbank may to some extent have access to the financial resources of private banking institutions, a critical factor governing the utilization of these resources is the funding level of Eximbank. Indeed, in the two most recent years for which complete data is available (1978 and 1979) Eximbank financed exports have amounted to only 1.5% of total U.S. exports. These figures clearly point out the limited, albeit vital, role Eximbank is designed to serve. Indeed, Eximbank's statutory authorization itself states that "the Bank in the exercise of its functions should supplement and encourage, and not compete with private capital."[4]

Moreover, although Eximbank is primarily a self-sustaining U.S. corporation required to provide adequate earnings to cover costs -- just like any other business -- it is, nevertheless, also a government institution subject to official United States policy and regulations in a variety of spheres ranging from foreign policy to economic concerns to environmental considerations. Given these additional considerations, Eximbank is therefore inherently less flexible than bank-owned ETCs would be in similar commercial circumstances.

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[4] The Export-Import Bank Act of 1945, as amended through November 10, 1978, 12 U.S.C. 635(b).

As a matter of fact, the very future of Eximbank and its ability to promote U.S. exports is under serious attack as we meet here today. Even if the proposed cuts in Eximbank's lending authority (cuts, which, I might add, will effectively shut down the Bank's role as a major player in the export process) are not enacted, the projected needs of Eximbank are almost certain to go unfilled. Thus, to expect an under-financed (or perhaps even an un-financed) Eximbank to provide a major source of credit for U.S. exports is but a fool's dream. Many of S.144's strongest opponents are also the strongest and loudest critics of the Eximbank. How do they expect to finance U.S. exports?

Finally, it appears almost self-evident that the major resource available to Eximbank is the very resource that bank-owned ETCs would tap one step closer to the original source, the financing capacity of private banking institutions. But just as important, bank-owned ETCs would also be able to provide the critical export marketing services necessary for successful export trade. Such export marketing services, which are beyond the capacity and purpose of Eximbank, would be an integral and vital part of bank-owned ETCs.

To reiterate, the Eximbank is a very important effort by the United States Government to give targeted official assistance furthering U.S. overseas trade, and as such is highly commendable. It's lending authority should be increased, not cut back, as some have proposed. However, there remain vast export trade opportunities which for the reasons already stated would be much more effectively pursued via privately operated bank-owned export trading companies.

D. REASONS FOR BANK OWNERSHIP OF ETCs

Mr. Chairman, to this point in our testimony we have to a great extent been on the defensive, that is attempting to rebut arguments of the opponents of direct bank participation in export trading companies. At this point we believe it is important to state affirmatively some of the benefits that we see accruing to the United States by virtue of export trading companies as envisioned under S. 144.

We would begin by emphasizing that our domestic laws separating banking and commerce are designed to preserve domestic competitive equality, not to meet the relatively recent challenge of foreign competition. However, because of this new foreign competition direct bank involvement in ETCs is absolutely necessary for American business to be competitive abroad.

In this regard, S. 144 would alter the laws separating banking and commerce only as they apply to the area of export trade, an area where the United States has always recognized the need for special rules to meet foreign competition (e.g., the Eximbank, Commodity Credit Corporation, Webb-Pomerene and DISC legislation, etc.). Thus, S. 144, rather than unnecessarily involving banks in commercial activities, actually follows the long tradition in U.S. law of not applying domestic rules to export trade activities, when to do so would only impede U.S. competitiveness in world markets.

Clearly, bank expertise would be both transferable and important to ETC management, organization and operation. Indeed, banks, with their international offices, experience in trade financing, business contacts at home and abroad, and international marketing knowledge are the most likely source of leadership in forming export trading companies.

Currently, a number of European banks operate some of the largest trading companies, and are able to supply those ETCs with almost all of the supporting facilities and services which U.S. exporters now most lack by contrast with these competitors.

What often happens is that foreign ETCs employ U.S. banks as intermediaries in arranging and financing initial transactions with U.S. exporters. However, after the initial contact with these American firms has been made, the foreign ETCs substitute their own internal financing for that of the original U.S. bank intermediary. The result of this procedure is a short term profit, but a long term loss for both the U.S. bank and America generally. Although more American-made goods are exported (a result we obviously support as highly desirable) export service fees are needlessly being shipped overseas along with U.S. products, with a resulting loss in income and jobs to American financial institutions.

Therefore, NMTBA strongly urges the direct involvement of U.S. banks in U.S. export trading companies. Such direct bank participation is the fuel needed to power the ETC vehicle. Direct incorporation in U.S. ETCs of the many export services that American banks are able to offer would be of great competitive assistance to U.S. exporters who now incur additional delays and expense in obtaining similar service. Furthermore, certain services now either unprofitable or illegal (e.g., putting buyers in touch with sellers for a fee, or providing credit and political risk insurance to U.S. manufacturers) would also be available under this approach.

For all of these reasons, we strongly urge support for the banking provisions of S 144 in comprehensive U.S. export trading company legislation.

IV. ANTITRUST LAW MODIFICATION PROPOSALS

The Webb-Pomerene Act, enacted in 1918, allows American companies to join together in developing foreign sales while enjoying limited immunity from the U.S. domestic antitrust laws. The current statute is administered by the Federal Trade Commission (FTC).

Unfortunately, the role of Webb associations has declined drastically over the years. From a high-water mark of about 19% of total U.S. exports between 1930 and 1935, Webb associations have slipped to less than a 2% share today.

Within the past year the merits of the Webb-Pomerene Act have been reexamined by the National Commission for the Review of Antitrust Laws and Procedures. At the conclusion of this study it was the Commission's recommendation that Congress reexamine the Act, and modify it where necessary.

In enacting the Webb-Pomerene Act, Congress envisioned an eager American business community availing itself of the opportunity to pool its facilities, resources, and expertise in such a fashion as to implement an ambitious joint exporting program. As we have seen that vision never materialized. One of the major reasons for the lack of development of export trading companies under the existing Webb-Pomerene Act has been the continuing uncertainty of the American business community as to what would or would not be within the scope of the Webb-Pomerene antitrust exemption.

Throughout the history of the Webb Act there have been a number of advisory opinions issued by the Federal Trade Commission, which in a case by case fashion have attempted to draw the parameters of the law's antitrust exemption.

Further clarification as to the parameter of the antitrust exemption provided under the Webb Act has been gained through adjudication of a number of cases brought by the Department of Justice.

The opinion of the court in the case of United States v. Minnesota Mining Mfg. (District Court, Massachusetts, 1950) provides the most authoritative interpretation of the scope and rationale of the antitrust exemption under the Webb-Pomerene Act. As stated by the Court:

> Now it may very well be that every successful export company does inevitably affect adversely the foreign commerce of those not in the joint enterprise and does bring the members of the enterprise so closely together as to affect adversely the members' competition in domestic commerce. Thus every export company may be a restraint. But if there are only these inevitable consequences, an export association is not an unlawful restraint. The Webb-Pomerene Act is an expression of Congressional will that such a restraint shall be permitted.

Title II of the Export Trading Company Act of 1981, S. 144, modifies the Webb-Pomerene Act in a way that will permit many more American firms to make use of its updated provisions to promote exports. Title II does the following:

> (1) It makes the provisions of the Webb-Pomerene Act explicitly applicable to the exportation of services. (The National Commission for the Review of Antitrust Laws and Procedures made this same recommendation in its report to the President.)
>
> (2) It expands and clarifies the Act's antitrust exemption for export trade associations, and provides an antitrust exemption for export companies formed under Title I of the Act.
>
> (3) It requires that the antitrust immunity be made contingent upon a preclearance procedure.
>
> (4) It transfers the administration of the Act from the FTC to the Department of Commerce.

> (5) It creates within the Department of Commerce an office to promote the formation of export trade associations and trading companies.
>
> (6) Finally, it provides for the establishment of a task force whose purpose will be to evaluate the effectiveness of the Webb-Pomerene Act in increasing U.S. exports and to make recommendations regarding its future to the President.

We note that, as pointed out by Senator Danforth in his comments upon introduction of this legislation, with the exception of the requirements in paragraphs (1), (4), and (6), of section 2 (a) of the Act (provisions which impose additional criteria for eligibility in addition to those found in the standards of the current Webb-Pomerene Act) the substantive law of antitrust as modified by the amended Webb-Pomerene Act has not been altered by S. 144. Instead, these amendments are simply a codification of court interpretations of the Webb-Pomerene exemption to the domestic antitrust laws. Also, according to testimony by a spokesman for the Antitrust Division of the Justice Department during hearings on last Congress' legislation, these amendments are consistent with the present enforcement policy of both the Department of Justice and the Federal Trade Commission.

However, we are aware that during debate on S. 2718 last year critics questioned the need for amending this section of the Webb Act if, as we have just stated, these amendments are nothing more than a codification of not only current judicial understanding of Sec. II of the Webb Act but also the enforcement intent of both the Department of Justice and the Federal Trade Commission.

In response to this criticism, we would point out that the record clearly evidences that these amendments are necessary in order to provide certainty to the business community in their international trade activities, assuring them that their activities do not run afoul of domestic antitrust laws. This we believe will alleviate as a deterent to broader utilization of the Webb-Pomerene Act what has previously been perceived by the business community as the Department of Justices', as well as the Federal Trade Commission's thinly veiled hostility toward Webb-Pomerene associations.

Closely allied with the issue of certain antitrust law exemption for export trading companies formed under the auspices of S.144 is the question of who would be able to bring an antitrust complaint against such an export trading company. Sec. 4 (e)(3) of the Act provides that only the Department of Justice or Federal Trade Commission has standing to bring a cause of action in court against a trading company or Webb association for violation of sec. 2 of the Act. Therefore, apart from the complained against activity being ultravires to the certification, a private party has no standing to bring suit. We fully support these provisions.

Additionally, Sec.205 of S. 144 authorizes the Secretary of Commerce, with the concurrence of the Attorney General and the Chairman of the Federal Trade Commission, and after a period of public comment, to formulate and publish proposed guidelines to be applied in determining whether an association, its members, and its export trade meet the statutory requirements that would be established by this bill.

Additionally, we strongly support the expanded export trading company concept embodied in S. 144. We believe that S. 144's expansion of the scope of export trading companies current activities under Webb-Pomerene to include both goods and services is a major and significant improvement. It is apparent from this provision that the sponsors of this legislation have recognized that a greater and greater portion of the U.S. economy deals in the service sector, and, therefore, it is entirely appropriate that such service activities be included under the provisions of this legislation.

Finally, we commend and strongly support the requirement of confidentiality for applications and annual reports required under S. 144.

V. CONCLUSION

In conclusion, we commend you Mr. Chairman, as well as the other cosponsors of S. 144 for your legislative initiative in this area.

The expansion of currently permissible activities under Webb-Pomerene to include services in addition to goods is of vital importance if the U.S. is to remain an aggressive and effective competitor in the ever expanding global economy. Additionally, clarification of the antitrust laws in this area, specifically those concerning which government agencies will be empowered to enforce such laws, will remove the legal uncertainties which heretofore have posed significant, and for many insurmountable, barriers to active invovement in the export market.

As we have stated, by restructuring the contours of export trading company activities, this legislation will provide the vehicle for increased export activity. However, the active and integral involvement of banks and other financial institutions in export trading companies is the absolutely essential element needed to power this vehicle. We believe that these two elements working together are the necessary and sufficient requirements of an effective export trading company bill.

We have noted that earlier versions of this legislation contained a third title which would have extended the tax deferral available under the DISC (Domestic International Sales Corporation) provisions of the tax code to exports of export trading companies, including exports of services. Moreover, it would also have allowed in some cases the use of sub part S of the tax code which permits certain passthroughs to shareholders to closely held corporations. However, we understand that the sponsors of S. 144 have for jurisdictional reasons this time decided not to include Title III in this particular piece of legislation, instead apparently anticipate introducing a revised version of Title III as a separate bill. In our testimony on these provisions during last Congress' hearings on S. 2718 we for the most part felt very favorably towards the addition of such provisions to the Internal Revenue Code and continue to do so.

Finally, we thank this Subcommittee for affording us the opportunity to relate the experiences of Acme-Cleveland and the U.S. machine tool industry in the export market. We believe that the proposals contained in the bills we have addressed today, in conjunction with the improved export administration controls and executive branch international trade reorganization plan will do much to encourage and promote overseas trade by both experienced and new exporters. We thank the Subcommittee for its attention and would be happy to respond to questions.

STATEMENT BY
NATIONAL MACHINE TOOL BUILDERS' ASSOCIATION
BEFORE THE
SUBCOMMITTEE ON MONOPOLIES AND COMMERCIAL LAW
COMMITTEE ON THE JUDICIARY
UNITED STATES HOUSE OF REPRESENTATIVES
MAY 7, 1981

I. INTRODUCTION

The National Machine Tool Builders' Association (NMTBA) is a national trade association representing over 400 American machine tool manufacturing companies, which account for approximately 90% of United States machine tool production. Although the total machine tool industry employs approximately 90,000 people with a combined annual output of around four billion dollars, most NMTBA member companies are small businesses with payrolls of 250 or fewer employees.

While relatively small by some corporate standards, American machine tool builders comprise a very basic and essential segment of the U. S. industrial capacity and have a tremendous impact on America. Ours is the industry that builds the machines that are the foundation of the United States' industrial strength and military might. Without metal cutting and forming equipment -- machine tools -- there could be no manufacturing as we know and have come to rely upon it today. From a consumer point of view, absent modern machine tools there would be no domestically affordable nor internationally competitive luxuries of modern life. And fundamentally more important, without state-of-the-art technology there would be a dangerously less reliable capability within the defense industrial base to meet the needs of national security in peaceful times, much less the demands of increased military production in time of a national emergency.

NMTBA and its member companies have devoted considerable time and effort to increasing exports.

NMTBA, on behalf of the American machine tool industry is devoting its own resources to the development and maintenance of international markets everywhere in the world. The Association has two people who spend virtually their full time overseas promoting United States machine tool exports with considerable assistance from the Department of Commerce.

NMTBA develops seminars and workshops to train our members' people on international financing, export licensing, or any other subject that will benefit a machine tool builder. We conduct market research to locate new and promising markets for industry development. We have conducted roughly thirty Industry Organized, Government Approved (IOGA) trade missions to help gain a foothold in these new markets, and approximately half a dozen are planned for 1981 and 1982. We sponsor foreign exhibitions so that our members will have more opportunities to display their products overseas. In addition, we often work in close conjunction with the Commerce Department on such activities as recruiting exhibitors for export promotion events such as catalog shows, video tape shows and technical seminars. We organize reverse trade missions to bring foreign buyers to our plants. And we bring large groups of foreign visitors to the International Machine Tool Show in Chicago every two years. The Commerce Department has worked closely with us in the development and implementation of these programs, as have the commercial officers in our embassies and trade centers around the world.

However, even in light of all of these export promotional activities engaged in by NMTBA, as an Association representing the industry generally, we are constrained from actually becoming involved in what we hope are the final fruits of our efforts -- namely, arranging actual sales for our members. For this reason, we are most gratified by the growing Congressional support for Export Trading Company (ETC) legislation such as that currently before this Subcommittee. We firmly support ETC legislation as a means by which to establish U.S. export trading companies which could provide all of the supporting facilities and services which U.S. exporters now most lack by contrast with their foreign competitors. Such ETC's would thus enable thousands of small and medium-sized American producers to combine their resources in a variety of ways and configurations in the interest of more competitive overseas marketing of American goods and services.

II. EXPORTS ARE A VITAL ELEMENT IN OVERALL U.S. ECONOMIC PERFORMANCE

The importance of export trade to our overall national economy is often underestimated. In an economy which has until only recently been primarily oriented to the domestic market, it is not hard to understand why such a misapprehension exists.

However, even more disturbing are the statements of those who appreciate the significance of foreign commerce, but erroneously believe that U.S. export performance has been "excellent", and "is one of the few bright aspects of...the economy as a whole".[1]

Although it is true that the ratio of exports to Gross National Product (GNP) rose from 4.2% in 1972 to 7.5% in 1979, it is also true that the U.S. imports grew equally as fast in importance relative to GNP from 5.1% to 8.7% in the same years.[2] Therefore, although in absolute terms or as a percentage of our domestic economy, the volume of U.S. exports has increased over the past several years, this growth has been negated by rapidly expanding imports, the result of which has been an aggregate trade deficit over the past five years exceeding $140 billion. It seems that we no longer think in terms of trade surpluses, but rather have become so accustomed to the status quo that we take satisfaction in boasting of decreasing trade deficits. Surely, we can do better. Further substantiating this disturbing trend, recent studies show that the "U.S. share of world markets declined from 21.3% to 17.4%

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[1] U.S. Congress, House, Committee on the Judiciary, Statement on International Application of U.S. Antitrust Laws, March 26, 1981, by James A. Rahl, Before the Subcommittee on Monopolies and Commercial Law, Committee on the Judiciary, House of Representatives, on H.R. 2326, H.R. 1648 and H.R. 2459, 97th Cong., 1st sess., 1981, p. 4.

[2] U.S., Congress, Senate, Export Trading Companies, Trade Associations, and Trade Services, S. Rept. 97-27 to Accompany S. 734, 97th Cong., 1st sess., 1981, p.4.

over the past 10 years, the largest relative decline among major industrial exporters."[3]

Narrowing our focus to just our own industry, it is important to point out that while the domestic U.S. machine tool market has been oscillating with very little real growth since the middle 1960's, the world market has grown substantially. Unfortunately, most of this worldwide expansion has been absorbed by our foreign competitors, eroding our market share.

In the middle 1960's, the American machine tool industry supplied approximately one-third of the total global market. In other words, one out of every three machine tools consumed in the world was produced by an American machine tool builder. However, according to American Machinist, as of the end of 1979, that portion had fallen to only 17.1%. In short, over the past 13 years, our share of the world market has plummeted by almost 50%. This dramatic decline is the result of two factors. First our domestic market has been invaded by foreign competitors on a scale never before dreamed of. For example, since 1964, America's imports of foreign machine tools have more than tripled, growing from 7% of total consumption 15 years ago to over 25% in 1980. It is obvious that, because the United States is the largest open machine tool market in the world, our foreign competitors have pulled out the stops and are aiming their export marketing efforts directly at America.

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[3] Id.

Second, and this is the aspect that we wish to focus on at this time, our share of the export market has also declined. When we look at the dollar value of our exports, the results of our efforts look encouraging. But if we look at American exports as a percentage of all of the machine tool exports in the world, the results are indeed very discouraging. We have been losing export market share at an alarming rate. Our share of the world's machine tool exports fell from 21% in 1964 to just 7% last year, placing us well behind West Germany and Japan as a machine tool exporting nation.

Finally, and perhaps most alarmingly, in 1978 the United States suffered its first machine tool trade deficit in history, with imports exceeding exports by some $155 million. And, to make matters even worse, this deficit trend continued through 1980. Even though our exports grew by 15.8% over 1978 levels, imports soared by more than 45% to produce an even larger trade deficit of almost $400 million in 1980.

While countries like Canada export 25% of their gross national product, Germany 22.6%, and the United Kingdom 23%, the U.S. consumes all but 7.5% of domestic production. Recent statistics indicate that only 8% of this country's 250,000 manufacturers ship their goods abroad and, of those, a mere 100 industrial giants account for more than half of all U.S. exports. And while it is true that our enormous trade deficit is caused primarily by oil imports, it is striking to note that had we maintained the share of manufactured exports that we enjoyed in 1960, we could be paying for our oil bill in 1981 without a trade deficit.

Therefore, we commend the Congressional sponsors of Export Trading Company legislation which is designed to spur creation of large scale American trading companies that would provide a much needed export vehicle for small and medium-sized business.[4] Of course, one of the essential elements of this legislation is the clarificaton of the parameters of U.S. antitrust law with regard to export trade activities. It is our firm belief that the _increased_ _certainty_ of application of the law which would be fostered by such clarification would have a significantly beneficial impact on encourageing numerous U.S. firms, which under current circumstances are discouraged by the irresoluteness of existing antitrust law, to participate in joint exporting ventures. This, of course, is the issue which is the focus of these hearings, and the one to which we will address the balance of our comments today. Specifically, we will direct our remarks to your bill, Mr. Chairman, H.R. 2326, the "Foreign Trade Antitrust Improvements Act of 1981," cosponsored by Mr. McClory, and Mr. McClory's separate proposal, H.R. 2459, the "Commission on the International Application of the United States Antitrust Laws Act," as well as the previously referred to more comprehensive Export Trading Company legislation (H.R. 1648).

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[4] U.S. Congress, House, _A Bill to Encourage Exports by Facilitating the Formation and Operation of Export Trading Companies, Export Trade Associations, and the Expansion of Export Trade Services Generally_, H.R. 1648, 97th Cong., 1st sess., 1981.

A substantially similar measure, S. 734, the "Export Trade Association Act of 1981," unanimously passed the Senate on April 7, 1981.

III. THE CURRENT UNCERTAIN PARAMETERS OF THE U.S. ANTITRUST LAWS AS APPLIED TO INTERNATIONAL TRADE SERVE AS A POWERFUL EXPORT DISINCENTIVE

Mr. Chairman, we commend you and Mr. McClory for your appreciation of the fact that "antitrust constraints [have] remained a strong concern to potential exporters,"[5] and that "this "concern is fundamentally born of uncertainty."[6] In contrast, several witnesses which have appeared before you in these hearings have suggested that it is not "clear that the antitrust laws have played a significant role in deterring export activity," and that therefore "the need for ... changes in the antitrust laws in order to promote exports is [also] not all that clear."[7]

Additionally, it has been charged that the uncertainty in this area of law and commerce is grounded more in indeterminate "perceptions" and "feelings" rather than specifically identifiable problems. And that even conceding the genuineness of these doubts, they do not differentiate antitrust concerns in foreign commerce from antitrust and other legal problems in general. The inevitable conclusion of this line of reasoning is that "(b)usiness itself is uncertain, legal risks are seldom fully covered, and, of course business abroad has its own risks and uncertainties."[8]

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[5] U.S., Congress, House, Representative Rodino speaking for his bill, H.R. 2326, to amend the Sherman Act and the Clayton Act to exclude from the application of such acts certain conduct involving exports, 97th Cong., 1st sess., March 4, 1981, Congressional Record, H. 779. (emphasis added)

[6] Id., Representative McClory speaking on behalf of H.R. 2326. (emphasis added)

[7] U.S., Congress, House, Committee on the Judiciary, statement of A. Paul Victor, March 26, 1981, before the Subcommittee on Monopolies and Commercial Law, Committee on the Judiciary, House of Representatives, concerning H.R. 2326, H.R. 1648 (Title II), and H.R. 2459, 97th Cong., 1st sess., 1981, p.3.

However, in response to these unfortunate misconceptions, there have also been a number of witnesses who have supported your understanding, Mr. Chairman, and that of Mr. McClory, that the uncertainty in this area of the law is a strong concern to potential exporters. We also affirm the belief of these later witnesses that "there is a need for clarification in the U.S. antitrust laws as to...foreign activities,"[9] and that the "[c]urrent uncertainty on the basic substantive scope of [these laws] has been damaging...to United States export interests."[10]

We strongly reject the allegation that the legitimate caution of U.S. business in this complex area is nothing more than an unfounded perception of a nonexistent reality. Unmistakably, the record already created by these hearings themselves clearly evidences a body of legal opinion in this area which is characterized by a plethora of judicial and administrative interpretation of statutory antitrust law, as well as government enforcement policy, which most charitably can only be described as confusing and, in the extreme, contradictory.

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[8] Id., Statement of James A. Rahl concerning H.R. 2326, H.R. 1648 and H.R. 2459, p.5.

[9] Id., Statement of David N. Goldsweig concerning H.R. 2326, H.R. 1648 and other related proposals, p.2.

[10] Id., Statement of James R. Atwood concerning H.R. 2326, and related proposals, p.2.

Moreover, even assuming that the uncertainty experienced by American business is only an unsubstantiated perception, isn't the mere fact that such an erroneous belief exists a significant comment on the lack of explicitness of the law in this area? And isn't such a perception, which actually does inhibit many businesses from pursuing valuable export opportunities for fear of potentially devastating treble damage suits, reason in itself to instill a greater amount of exactitude in this area of trade regulation.

Finally, as businessmen we readily admit that a degree of uncertainty and risk is necessarily attendant to any commercial endeavor. Certainly, we do not expect, nor do we even seek omniscience in our business dealings. However, we do object to the contention that because all business, both domestic as well as foreign, is to some extent uncertain (a proposition we do not disagree with) that it is, therefore, valid to say that there is no difference between antitrust in foreign commerce and antitrust in general. Such an assertion we believe implies an incorrect comparison of the uncertainty an American business faces in its domestic activities to that which it must deal with in international competition.

The U.S. Antitrust laws as applied to domestic commerce are designed to preserve competitive equality in the U.S. market. And, although they may not be perfectly drafted nor precisely clear in every case, at least there is commercial equality in that all business competitors in the U.S. market have to play by the same rules. Unfortunately, such competitive equality does not currently exist in the international arena. Without great elaboration, suffice it to say that even skeptics have admitted that not only are foreign business competitors often perceived as playing by different rules, but "they often undoubtedly do."[11]

Therefore, the really meaningful comparison to be made is not of the respective uncertainties faced by American businesses in the domestic market vis-a-vis foreign trade, but rather of the trade laws which U.S. firms must operate under vis-a-vis those which their foreign competitors must comply with.

IV. APPLICABLE U.S. ANTITRUST LAWS: THEIR INTERPRETATION AND ENFORCEMENT

Sherman Act sections 1 and 2[12] prohibit both conspiracies to restrain, and attempts to monopolize, the domestic or foreign commerce of the United States. The Clayton Act of 1914 [13] prohibits anticompetitive mergers by all firms engaged in domestic or foreign commerce. In general, these laws apply to the transactions of both domestic and foreign firms whether they occur in the United States or abroad.[14]

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[11] Statement of James A.Rahl, supra, at 5.

[12] 15 U.S.C. §§1, 2 (1976).

[13] 15 U.S.C. §18 (1976).

[14] Apparently all of the extraterritorial applications of antitrust law in areas relevant to export trade have been under the Sherman Act.

Also §5 of the Federal Trade Commission Act may reach conduct prohibited by the Sherman Act and the Clayton Act, as well as incipient violations of either act. 15 U.S.C. §45 (1976). The FTC Act's jurisdictional clause, 15 U.S.C. §44 (1976) is comparable to the Sherman Act's, 15 U.S.C. §§1-2 (1976). However, the application of the FTC Act to foreign transactions has been infrequent.

Identified as the "cornerstones" of American enforcement policy in international trade, the two objectives of the antitrust laws are clear and uncontestable: (1) to protect American consumers by assuring them the benefit of competitive products and ideas from both foreign and domestic sources; and (2)to protect American export and investment opportunities against unreasonable restraint or monopolization.[15] What is not clear, however, are the problems concerning jurisdiction, special exemptions and defenses associated with the application of this policy to international business.[16]

As pointed out by earlier witnesses, "[c]urrent law is murky...on whether the Sherman Act extends beyond these two policy areas."[17] Uncertainty most often arises when the operative business acts occur abroad, but the application of U.S. antitrust laws would have to be predicated on the domestic commercial effect of these acts.

A survey of the literature in this area indicates the numerous attempts to clarify the exact type of effect on U.S. commerce required before subject matter jurisdiction over foreign acts exists under the U.S. antitrust laws. One attempt at codification is section 18 of the Restatement (second) of Foreign Relations Law of the United States, which requires that the effects of these acts be "substantial" and "forseeable."[18] Apparently, the United States Justice Department in their Antitrust Guide for International Operations has adopted these same tests by stating that "(w)hen foreign transactions have a substantial and forseeable effect on U.S. Commerce, they are subject to U.S. law regardless of where they take place."[19] And with regard to judicial interpretations, contemporary U.S. courts have regularly held that the Congressional Intent of the Sherman Act makes it applicable even to acts committed wholly abroad, by either Americans or foreigners, if those acts have "intended and actual" or "substantial and forseeable" effects on U.S. commerce.[20]

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[15] U. S. Department of Justice, Antitrust Division, Antitrust Guide for International Operations 4-5 (1977). [Hereinafter cited as Antitrust Guide].

[16] Joel Davidow, "U.S. Antitrust and Doing Business Abroad: Recent Trends and Developments," Northwest Journal of International Law & Business, 1 (1979), 23.

[17] Statement of James R. Atwood, supra, at 2.

A major exception to the general application of the U.S. antitrust laws to foreign commercial transactions is the so-called Webb-Pomerene exemption.[21]

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[18] Restatement (Second) of Foreign Relations Law of the United States 18 (1965).

[19] Antitrust Guide, supra, at 6.

[20] See Continental Ore Co. v. Union Carbide & Carbon Corp., 370 U.S. 690, 704-05 (1962); Steele v. Bulova Watch Co., 344 U.S. 280, 285-89 (1952); United States v. Aluminum Co. of America, 148 F. 2d 416,443-44 (2d Cir. 1945).

[21] Webb-Pomerene Export Trade Act, 15 U.S.C.§61-65 (1976).

The Webb-Pomerene Act, enacted in 1918, allows American companies to join together in developing foreign sales while enjoying limited immunity from the U.S. domestic antitrust laws. The current statute is administered by the Federal Trade Commission (FTC).

Unfortunately, the role of Webb associations has declined drastically over the years. From a high-water mark of about 19% of total U.S. exports between 1930 and 1935, Webb associations have slipped to less than a 2% share today.

Recently, the merits of the Webb-Pomerene Act have been reexamined by the National Commission for the Review of Antitrust Laws and Procedures. At the conclusion of this study it was the Commission's recommendation that Congress reexamine the Act, and modify it where necessary. Mr. McClory is, of course, aware of this, because he was a member of this Commission.

In enacting the Webb-Pomerene Act, Congress envisioned an eager American business community availing itself of the opportunity to pool its facilities, resources, and expertise in such a fashion as to implement an ambitious joint exporting program. As we have see that vision never materialized. One of the major reasons for the lack of development of export trading companies under the existing Webb-Pomerene Act has been the continuing uncertainty of the American business community as to what would or would not be within the scope of the Webb-Pomerene antitrust exemption.

Through the history of the Webb Act there have been a number of advisory opinions issued by the Federal Trade Commission, which in a case by case fashion has attempted to draw the parameters of the law's antitrust exemption.

Further clarification of the antitrust exemption provided under the Webb Act has been gained through adjudication of a number of cases brought by the Department of Justice.

The opinion of the court in the case of United States v. Minnesota Mining Mfg. Co., 92 F. Supp. 947 (D. Mass. 1950), is frequently cited as one of the most authoritative interpretation of the scope and rationale of the antitrust exemption under the Webb-Pomerene Act. As stated by the Court:

> Now it may very well be that every successful export company does inevitably affect adversely the foreign commerce of those not in the joint enterprise and does bring the members of the enterprise so closely together as to affect adversely the members' competition in domestic commerce. Thus every export company may be a restraint. But if there are only these inevitable consequences, an export association is not an unlawful restraint. The Webb-Pomerene Act is an expression of Congressional will that such a restraint shall be permitted.[22]

However, authorities in the field point out that this same Minnesota Mining decision may also be read as suggesting that "export cooperation among American firms is suspect, even if domestic markets are not affected and even if no American competitors are damaged commercially."[23] In sum, restrictive interpretations have substantilly emasculated this exemption.[24]

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[22] United States v. Minnesota Mining & Mfg. Co., 92 F. Supp. 947 (D. Mass. 1950) at____.

A more recent line of judicial decisions continues to give credence to the theory that foreign businesses and consumers are within the scope of protection intended by the U.S. antitrust laws, even when the allegedly anticompetitive effects felt by them occur in foreign markets.[25] In Pfizer, Inc. v. Government of India, 434 U.S. 308 (1978), the Supreme Court held that under section 4 of the Clayton Act foreign governments have standing to sue U.S. businesses for treble damages for violations of U.S. antitrust laws. However, neither the holdings nor the ratio decidendi of any of these decisions is particularly clear, and contrary precedents can be marshalled.[26]

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[23] Statement of James R. Atwood, supra, at 3.

[24] Compare the restrictive United States interpretation of the export exemption with the Export and Import Trade Law of Japan, Law No. 299, Aug. 5, 1952 (as amended), and the associations thereunder. When an export association is formed pursuant to articles 5 and 11, the Ministry of International Trade and Industry may require that all nonmembers also adhere to the export agreements reached by the Association members. Art. 28. Thomas E. Johnson, "The Impact of the U.S. Antitrust and Related Laws on the International Marketing of Goods and Services (Export and Import)," Northwest Journal of International Law & Business, 1 (1979), p. 121 at note 19.

However, because fundamental differences between our two societies should discourage the belief that America can or should attempt to duplicate the Japanese model for its own economy, NMTBA concurs in the belief of most trade experts that the U.S. must develop its own brand of trading company that is consistent with our nation's tradition of competitiveness rather than consensus. This we believe, is what H.R. 1648 is designed to do.

[25] E.g., Pfizer, Inc. v. Government of India, 434 U.S. 308 (1978); Waldbaum v. Worldvision Enterprises, Inc., 1978-2 Trade Cases ¶62, 378 (S.D. N.Y. 1978).

Without a doubt, these expansive interpretations of the Sherman Act leave American exporters in a very confusing and unenviable position. American firms must be concerned that cooperative arrangements among themselves, intended to enhance the benefit from their export trade, might be subject to U.S. antitrust attack not only because of harmful effects in American markets, but also because of consequences felt in foreign markets by persons operating or buying abroad. The result -- export opportunities that would be beneficial to American firms and the U.S. economy are lost to foreign competitors who are not so restricted by their national antitrust laws.

V. ANTITRUST LAW MODIFICATION PROPOSALS

Having established the importance of a healthy export trade to the overall performance of the U.S. economy, and the uncertainty of application of the American antitrust laws to foreign commerce, we now focus our attention on the legislative proposals which are the basis for these hearings.

A. CERTAINTY OF THE LAW

Clearly, the underlying purpose of both H.R. 1648 and H.R. 2326 is the enhancement of U.S. exports by means of increasing the competitiveness of American firms in world markets. Moreover, although H.R. 1648 is a much more encompassing approach to the problem, both H.R. 1648 and H.R. 2326 recognize the significant benefits to exporting to be derived from increased certainty in the application of U.S. antitrust laws to foreign trade. However, as is often the case, even where motives and objectives coincide, methods of achieving those objectives sometimes differ. The current debate over the relative merits of H.R. 1648 and H.R. 2326 appears to be such a case.

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[26] National Bank of Canada v. Interbank Card Assn., 1980-81 Trade Case ¶63, 836 (2d Cir. 1981) (Anticompetitive effects within a foreign market are not sufficient to trigger Sherman Act jurisdiction).

Although we would hasten to emphasize that we do not believe the approaches taken in H.R. 1648 and H.R. 2326 to be mutually exclusive or inconsistent, we do believe that the certification procedure embodied in H.R. 1648 would be a much more effective means of bringing increased certainty to this area than rewriting the Sherman and Clayton Acts. For this reason, although we feel that the statutory changes suggested by H.R. 2326 have merit, we fully support and strongly urge this Committee to adopt the certification provisions contained in H.R. 1648.

We firmly believe that this procedure is a necessary anticedent to an adequate degree of certainty in the international application of U.S. antitrust laws. And that, moreover, such a level of certainty is requisite to the flourishing of more competitive U.S. export trade.

We are, of course, aware of the criticisms that have been made of H.R. 1648's certification procedure. Therefore, we would like to take this opportunity to respond to those criticisms and explain why we believe that the statutory changes incorporated in

H.R. 2326 would not in themselves be adequate without also a functioning certification procedure as envisioned by H.R. 1648.

As we have previously stated, the uncertainties in this area are largely a product of broadly-worded U.S. antitrust statutes, which have spawned a progeny of case law which is often confusing and sometimes in conflict with current official Justice Department enforcement policy. A major reason for this problem is that any joint activity by U.S. trading companies shipping goods overseas may very likely have some effect on the domestic supply of those goods. There is no clear bright line delineating when the spillover has sufficient adverse effect on U.S. commerce.

To reiterate, under the Antitrust Guide it appears that current official Justice Department enforcement policy is to draw this line just short of activities that may have a "substantial direct" or "intended" effect on U.S. consumers or export opportunities. In contrast, however, the results of private antitrust litigation have not always been in harmony with official government policy. The testimony already received by this Committee during these hearings, as well as much of the other literature on this topic, is replete with illustrative examples of this problem.[27]

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[27] For example, in a recent case from the Federal Court for the Southern District of New York, Dominicus Americana Bohio v. Gulf & Western Industries, Inc., 473 F. Supp. 680, 687 (S.D.N.Y. 1979), the court declared that to achieve federal jurisdiction it was "probably not necessary for the effect on foreign commerce to be both

Therefore, we seriously question the idea that the best way to reduce the uncertainty surrounding the reach of the Sherman Act is to re-word this regrettably vague statute by substituting language which itself is only marginally more precise

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substantial and direct as long as it is not de minimus." Dominicus Americana is but one example of a number of cases that have applied U.S. antitrust laws where the primary impact of the business activity in question is on a foreign company in a foreign country. See Todhunter-Mitchell & Co. v. Anheuser-Busch, Inc., 375 F.Supp. 610, modified in part, 388 F. Supp. 586 (E.D. Pa. 1974); Industria Siciliana Asfalti Bitumi v. Exxon Research and Engineering Co., 1977-1 Trade Cas.¶61,256 (S.D.N.Y. 1977). Statement of David N. Goldsweig, supra, at 3-4.

Another aspect of this situation which further exacerbates the problem is the large disparity in the number of cases filed by the Government as compared to those brought by private litigants. For example:

> A review of the statistics of the U.S. Courts indicates that between 1973 and 1977 the Department of Justice brought approximately fifty to sixty suits per year to enforce the antitrust laws. These suits, of course, generally relate to important issues and involve substantial companies. As a result, their influence in formulating antitrust precedent is much greater than the mere number of suits.
>
> On the other hand, between 1973 and 1977 approximately 1100 to 1300 private antitrust suits per year were brought in the Federal Courts or about twenty times the number of Government suits.

ABA Antitrust Section, Antitrust Law Developments 99 (2d Supp. 1979), as cited in Johnson, supra, at 124-25.

The above quote, of course, emphasizes that business counsel must constantly be aware of the standards applied in private actions, regardless of how favorable existing antitrust guidelines may be. Moreover, counsel must also be aware that these guidelines only reflect current Justice Department enforcement policy and are, of course, subject to change.

than that already in the law, and which additionally suffers from the lack of any, (either judicial or administrative) interpretative history.

Such a tabula rasa approach may in some circumstances be desirable. However, we believe that in the current context, while some existing interpretations would surely be viewed as relevant to the new statutory language, the perception if not the fact, would undoubtedly be that of a "clean slate" upon which most U.S. exporters and their counsel would, with good reason, draw an even larger question mark than the one that already exists in their minds concerning this subject. And while some have criticized H.R. 1648's certification procedure as creating a "patch-quilt" of exemptions, we would suggest that a better example of such a "patch-quilt" effect is that which we have under the current law (with a myriad of judicial and administrative interpretations of statutory law which itself was likely thought to be adequately clear when it was enacted,) or that which would result under new statutory terminology which would itself be subject to this same interpretative process de novo.

Finally, although it can be argued that all areas of the law, not just antitrust statutes, are subject to this kind of common law development, we would again point out that because of the distinctiveness of the problem of international commercial competition, this is an area of the law which should enjoy more than the average degree of certainty. Indeed, even those who oppose H.R. 1648's certification procedure have testifed before this Committee that it is upon the basis of "considerable experience" that they make the judgement that "there are few activities which will increase exports which cannot safely be done insofar as American Law is concerned."[28]

Mr. Chairman, we believe that these witnesses have made our point perhaps even better than we ourselves can. Indeed, it is apparent in many instances that only antitrust counsel with "considerable experience" are capable of rendering adequate legal interpretations of this complex body of law. Unfortunately, most businessmen who run the average small to medium-sized firm are not experienced antitrust lawyers, nor are most able to afford such specialized legal counsel. However, the vast majority are justifiably fearful of accidentally violating the U.S. antitrust laws, and, therefore, forfeit potentially lucrative export opportunities rather than run this risk.

In light of this background, we strongly recommend enactment of the certification procedures contained in Title II of H.R. 1648. We recognize and completely support the prevailing sentiment toward reducing, to the maximum extent possible, government regulation of our free-market economy. Moreover, we firmly believe that H.R. 1648's certification procedure is actually in harmony with this objective and is not, as has been suggested by some of the bills detractors, a bureaucratic apparatus which would confer antitrust immunity at an uncertain cost in government red tape and possible anticompetitive domestic effects.

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[28] Statement of James A. Rahl, supra, at 5. Additionally, Professor Rahl at page 7 of his statement cites at least several recent common law developments in this area of the law which would pose difficult interpretive problems even for as experienced an antitrust scholar as himself.

It is important to remember that the courts of the judicial branch of government, although not usually thought of as regulatory bodies in the sense of the executive branch or independent agencies, nevertheless do exercise enormous regulatory authority over the commercial practices of our economy. And as we have already discussed, this authority is often applied in a very inconsistent and uneven fashion, which becomes even more confusing when combined with sometimes conflicting executive branch enforcement policy.

Therefore, we believe that the certification procedure of H.R. 1648 will be a major step in helping to relieve the burden of uncertain regulation now shouldered by American firms that desire to be active in the export market, while at the same time providing very adequate protection against unwanted anticompetitive domestic effect. Moreover, by relieving this burden, it will especially help those small and medium-sized businesses which many are convinced have the greatest potential for making a significant contribution to our volume of export trade. And isn't making the American economy more efficient, by eliminating needless restraints and expense, and internationally more competitive the real goal of regulatory reform anyway.

B. ADMINISTRATION AND ENFORCEMENT

Opponents of H.R. 1648 have further criticized the bill's certification procedure as being unnecessary, by arguing that where genuine uncertainty presently exists, current Justice Department procedures allow potential exporters to ask the Antitrust Division for a Business Review. In the past, these reviews have often been slow, complex and costly, so that lawyers frequently have advised against their use,[29] Nevertheless, H.R., 1648's opponents assert that this procedure (as revised during the last Administration)[30] should be given more extensive use before a new certification procedure is implemented. Although on the surface this sounds quite reasonable, might it not be prudent to first ask why this business review procedure, even as modified to expedite foreign trade activities, has been used so little.

Although the Department of Justice does not issue advisory opinions (unlike the Federal Trade Commission, hereinafter FTC),[31] "under its Business Review Procedure the agency, through the Antitrust Division," may indicate its 'present' antitrust enforcement intentions with respect to a proposed course of action submitted by a business, industry group or other enterprise.[32] However, unlike the action-forcing provisions of §206 of H.R. 1648, which require the Secretary of Commerce to either issue, amend or deny a certificate within a fixed period of time after review of a request, under the Justice Department's Business Review Procedure, the Antitrust Division may or may not state its present enforcement intention with respect to the proposed business conduct.[33]

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[29] Statement of James A. Rawl, supra, at 6.

[30] CCH Trade Reg. Rep. ¶8559.40 (announced Dec. 6, 1978). Although this new policy was designed to expedite export-related business review requests, it must also be noted that none of the requirements or conditions relating to the scope of protection afforded by such a review (28 C.F.R. 50.6) was changed or modified by this announcement.

[31] According to CCH Trade Reg. Rep.¶9731:
"[A]dvice on a 'proposed course of action' may be requested from the FTC. [Moreover,] Commission policy is to consider the advice and, if practicable to inform the requesting party of the agency's views, via an advisory opinion." However, it should also be pointed out that this advice "does not bar the FTC from reconsidering the questions involved and rescinding or revoking the advice."

Moreover, a business review letter states only "the enforcement intention of the [Antitrust] Division as of the date of the letter, and the Division remains completely free to bring whatever action or proceeding it subsequently comes to believe is required in the public interest."[34] And, although the Justice Department has never brought a criminal action contrary to a previously expressed opinion, where there has been full and true disclosure at the time of presenting the Business Review letter request, the completely discretionary nature of this procedure continues to re-enforce the uncertainty of potential exporters.[35] In contrast, under the proposed provisions of §206 (d) of

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[32] CCH Trade Req. Rep ¶8559

[33] Id., ¶8559.10

[34] Id.

[35] Id.

H.R. 1648 the Secretary of Commerce would be able to modify or revoke an Export Certification only for cause, and only after an opportunity for a hearing pursuant to §554 of title 5, United States Code.

Once again in contrast, the certainty of the scope of the antitrust exemption provided by the certification procedure of H.R. 1648 far exceeds that afforded by the Justice Department procedures just described. Specifically, H.R. 1648 §206 (6) ensures that:

> The subsequent revocation or invalidation in whole or in part of such certificate shall not render an association or its members or an export trading company or its members, liable under the antitrust laws for such export trade, export trade activities, or methods of operation engaged in during such period.

Closely allied with the previous issue are the questions; (1) who would have standing to sue an export trading company or an export trade association for an alleged violation of its export trade exemption; and (2) what would be the measure of damages for such a violation?

With respect to standing, under the present law a favorable response in a Justice Department Business Review letter offers no protection from either the Government or private litigants bringing suit against an exporter. However, under §206 (e)of H.R. 1648, apart from the complainer against activity being ultra vires the certification, "[n]o person other than the Attorney General or [FTC] shall have standing to bring an action...for failure...to meet the eligibility requirements of [the] act."[36] We fully support this provision, particularly in light of the confusion which the decisions in private litigation have brought to this area.

Concerning the measure of damages in such suits, under present law exporters who are found to have exceeded their export antitrust exemption are potentially liable for treble damages. Still more troubling is the fact that such damages may even relate to a period of time during which the defendant firm was operating under what it then relied on as being authoritative government enforcement policy as stated in a Business Review letter. House Bill 1648, on the other hand, would very equitably and sensibly limit such damages to the amount of actual injury suffered during the time in which the defendant firm acted outside the boundaries of its certification.

Finally, there is the issue of which government agency should be charged with the responsibility of administering this program of antitrust export exemptions. Under current law, although the FTC has responsibility for administering the Webb-Pomerene export exemption, the Department of Justice may also prosecute firms for what the Antitrust Division considers to be a violation of that exemption. And, unfortunately, the enforcement of these two agencies has not always been uniform.

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[36] H.R. 1648 §206 (e) (3).

But perhaps even more significantly, this arrangement has been a serious deterent to the broader utilization of the Webb-Pomerene exemption, because of what has been perceived by the business community as the Justice Department's, as well as the FTC's hostility toward such foreign commerce antitrust exemptions.

For this reason, we strongly support H.R. 1648's approach of placing primary responsibility for administering the export antitrust certification procedure in the Department of Commerce, in consultation with both the Justice Department and the FTC. We believe that this arrangement will enable many U.S. businesses to begin to overcome their natural reluctance to utilizing the export certification procedure for fear that it will only serve to make them a target for Justice Department inquiries concerning their activities that may "spill over" into the domestic market. At least one previous witness has suggested that there may already be some empirical evidence of this phenomenon in the infrequent use of the Webb-Pomerene exemption.[37] We would agree with this assessment.

Critics of vesting administration of the certification procedure in the Commerce Department have asserted that "since the Justice Department and the FTC are more sensitive to and familiar with the antitrust issues that will be raised by applications for an antitrust exemption under the Act...those antitrust agencies, [the emphasis here is that of the source to which we refer, not our own, although we do agree] not the Commerce Department [should] be made responsible for conducting [the] regulatory process ...ultimately provided by Congress.[38]

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[37] Statement of David M. Goldsweig, supra, at 5.

Indeed, we totally agree that these "antitrust agencies" do focus much more heavily upon the antitrust implications of potential cooperative exporting ventures -- that is exactly our point! We do not for a moment doubt the legitimacy of this concentration for these two trade regulation enforcing agencies. Obviously, this is the job that they were designed to do. What we do question, however, is the wisdom of assigning the program of export antitrust exemption certification, which has as its fundamental purpose the fostering of joint export ventures, to an agency or department that has an inherent bias against such activities generally. And there is little doubt that such a bias does exist as was quite clearly pointed out by former Assistant Attorney General John H. Shenefield (who was in charge of the Antitrust Division during the Carter Administration) when he testified before this Committee that a business review procedure conducted by the Justice Department would focus much more heavily on antitrust issues, whereas, a certification procedure administered by the Commerce

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[38] Statement of A. Paul Victor, supra, at 9.

Department would resemble more of a balancing of export trade concerns with potential antitrust issues.[39]

We could not have made the point any better ourselves. But to view the kind of balancing of competing export and antitrust interest described by Mr. Shenefield as a bad method of making U.S. policy in the vital area of U.S. international economic performance is to completely misunderstand the *raison d'etre* of export trading company legislation.

C. ANALYSIS OF H.R. 2326

We are aware that because the language of H.R. 2326 closely tracks the enforcement policy of the Justice Department as expressed in its *Antitrust Guide*, some have argued that H.R. 2326 would not bring about any drastic changes in the enforcement of the U.S. antitrust laws. However, as we have already stated, we find it hard to refute the fact that the natural tendency to litigate the meaning of the new statutory language proposed by H.R. 2326, will undoubtedly give rise to a degree of uncertainty in itself.

Therefore, in order to minimize such additional confusion, we would suggest several modifications to the language of H.R. 2326 should it be adopted by this Committee.

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[39] Oral remarks of former Assistant Attorney General John H. Shenefield (Antitrust Division) in response to question by Representative Robert McClory during April 8, 1981, House Judiciary Committee Hearing on H.R. 2326 and related legislation.

1. The Pfizer Problem

First, in response to what is known as the "Pfizer Problem"[40]--i.e., the ability of foreign entities or sovereigns to sue American companies in U.S. courts for restraints of trade in foreign markets -- we recommend that the language of H.R. 2326 be amended to make it clear that effects occurring only within foreign jurisdictions do not provide a basis for antitrust jurisdictions by themselves, or even when aggregated with alleged domestic effects.

2. Forseeability

Our second concern centers on H.R. 2326's use of the phrase "direct and substantial" as it relates to the Justice Department's current position that only "forseeable" effects on U.S. commerce be subject to U.S. antitrust jurisdiction. While we fully support the Antitrust Divisions's view, it is unclear whether the concept of forseeability is contained in H.R. 2326's phrase "direct and substantial." Therefore, we recommend that the term "forseeable" be added to this phrase in Section 7 of the Sherman Act as amended by H.R. 2326.

3. FTC Act

Although historically the FTC has not shown much interest in scrutinizing the foreign activity of U.S. firms or the activity of foreign companies that may affect domestic U.S. commerce, this attitude may be changing. Therefore, we believe it would be prudent to provide a similar amendment to the FTC Act that would parallel the language of H.R. 2326 in amending the Sherman Act.

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[40] Pfizer, Inc. v. Government of India, 434 U.S. 308 (1978)

VI. CONCLUSION

As we have repeatedly emphasized throughout our testimony, export trade is no longer an expendable luxury, but rather is a vitally important component of a healthy U.S. economy. Therefore, it is imperative that the United States do all that it can to encourage exports. Indeed, the recent successful completion and ratification of the Multilateral Trade Negotiations (MTN) appears to be evidence that this fact of modern global economic life is gaining wider recognition and understanding. Moreover, the MTN and other recent export related initiatives are a direct reflection of America's continued commitment to removing governmental restraints on trade, thus enhancing the freedom and fairness of the world trading system.

One major factor in promoting fairness in foreign trade is for all international commercial competitors to play by approximately the same rules. In this regard, we have today stated our concern that American exporters may be severely handicapped in the international arena by the uncertainty engendered by the confused and confusing state of U.S. Antitrust Law. However, we are also very gratified to note that our appeals have not fallen on deaf ears. To the contrary, we commend you, Mr. Chairman, and Mr. McClory for your appreciation of this problem, and for your efforts to bring a greater degree of certainty to the foreign application of U.S. trade regulations. But as we have previously stated, although our objectives are the same, our views on achieving those goals are slightly different.

We firmly support and strongly urge the enactment of the antitrust exemption certification procedure contained in H.R.

1648, as being the most effective way of alleviating the current export-inhibiting uncertainty of our antitrust laws. We would, however, again state that we do not believe H.R. 1648's certification procedure to be exclusive of, or inconsistent with what we consider to be the potentially helpful modifications of the Sherman and Clayton Acts proposed by H.R. 2326

We are realistic enough to know that none of these proposals, either separately or jointly are a panacea for all of America's balance of payment ills. But, we do believe that working together, the reforms envisioned by these two bills can be a powerful incentive for American businesses that have to this point been understandably reluctant to engage in joint exporting ventures.

Clearly, Mr. Chairman, the time to act is now! Although we do not object to Congressman McClory's Bill H.R. 2459, which would create a commission to study the effects of the extraterritorial application of U.S. antitrust laws generally, we, nevertheless, believe that more than sufficient information and expertise currently can be called upon to enable this Congress to write good legislation in the specific area which we have addressed today. We would, of course, support as entirely appropriate a future review of the functioning of whatever legislation you may author at this time.

As with any legislation, there will be an inevitable lag time between the enactment of export trading company measures and the actual realization of their intended effects. Therefore, the faster you act, the sooner the American economy will experience the beneficial effects of your action. Thank you.

Senator **Hawkins**. Thank you so much, Mr. Howe.

We will start the questioning with Mr. Tanaka. You mentioned how Japan achieves many regulatory goals by informal methods such as administrative guidance.

Do you see any way that such an informal method could work or could be made to work in this country?

Mr. **Tanaka**. Yes. I think that all these problems, such as the adversarial nature of the relationship between the government and industry, are basically attitudinal, and recognition that they are attitudinal is more than 50 percent of the battle. That would, I think, necessarily bring about a change in attitudes which in turn would bring about a change in the quality of relationship between government and business.

Senator **Hawkins**. You speak of the short-term nature of business, particularly about the 3-year payback period, as inhibiting growth for the future, What's the Japanese debt to equ ty ratio?

Mr. **Tanaka**. The usual Japanese debt to equity ratio is around 75 to 80 percent debt capital and the balance in equity capital. To the extent that the Japanese companies shoulder the interest costs of the tremendous debt capital, that debt capital is not cheap. And for this reason, the Japanese companies now are moving toward increasing their percentage of equity capital as against debt capital because debt capital in terms of the aggregate interest costs over the years is so substantial.

Senator **Hawkins**. Does bank control of corporate decisionmaking result in longer term perspective and thus higher investment?

Mr. **Tanaka**. No. I think that the banks, in view of the fact that they loan such substantial sums of money for operating expenses of the companies, keep close contact with the executives of the companies, continue constant surveys on the range of products produced by their client companies, to make sure that their investment in these companies in the form of loan capital is secure and is a low-risk investment. So that there is a much more intimate relationship developed between the banks and its client corporations, not because of some conspiratorial design, but because of the need on the part of the banks to protect their investment.

Senator **Hawkins**. What happens or who pays when investments don't pay out?

Mr. **Tanaka**. When investments don't pay out generally in Japan the companies are left to expire. Generally speaking, the banks as well as the owners share the loss. I think that the trend in Japan and the practice in Japan in the past has been to let the less competitive industries expire and to promote the ongoing economic process of disinvestment out of low-growth, low-technology, labor-intensive industries, so that capital will be made available for the high-growth sunrise industries, the high-technology industries. This is the economic process that I think this country ought to focus upon to make more capital available to the growth industries.

Senator **Hawkins**. One last question before I turn it over to my colleague. In your oral statement you state:

> In contrast, the Japanese, with the exception of agriculture, tend relatively more systematically to allow their sunset industries to expire if they cannot compete.

If agriculture is an exception and it's obvious they cannot compete, why do you feel there—there is the example we have with Florida citrus.

Mr. TANAKA. Yes, Senator. I'd like to point out that I think most countries, including this country, are extremely protective with respect to the agricultural sector.

In addition, in the case of Japan, the ruling Liberal Democratic Party has a great percentage of its political base located in the rural areas and this makes it very difficult for the Japanese Government or the bureaucracy to accede to GATT members' requests to liberalize their agricultural sector.

I think that the embargo on soybean exports to Japan in 1974 during the Nixon administration probably has hardened the Agriculture and Forestry Ministry's resolve to maintain some domestic agricultural production capability.

Senator HAWKINS. So there is some politics in Japan?

Mr. TANAKA. Indeed there is.

Senator HAWKINS. Congressman Richmond.

Representative RICHMOND. Thank you.

Mr. Tanaka, the picture you painted is a picture of Japanese industry as absolutely marvelous and American industry as going down the drain. I think we ought to put the thing in focus and realize that America is still the industrial giant of the world and we have many, many of our companies in great shape. We have had quality circles in our companies for many, many years and we have great growth records and everything, so I think we are not exactly ready to hang up the white flag in the United States.

Certainly we have to improve. Certainly I think the problems are more with management—the fact that our management has gotten flabby and doesn't do a day's work, and I think the second problem is labor-management relations. I find in a company in the United States where you have first-class management that really works at managing the company and where you have decent labor-management relations, you then can compete with Japanese companies with no trouble at all. I ought to know; I do it myself. But I think your testimony really has to be directed to those American companies that have let themselves get flabby and let their assets get antiquated and cut back on research and development.

Senator HAWKINS. Did you say assets?

Representative RICHMOND. Assets. You're absolutely right, Senator.

Senator HAWKINS. Just wanted to make it clear for the record.

Representative RICHMOND. You mentioned government cooperation. Can you tell us—you know, we have an awful lot of problems with dumping of Japanese goods in the United States right now—steel forgings and what have you. How does the Japanese Government get involved in helping industries in subsidizing Japanese industry to ship goods to the United States below their costs? And you and I know that's the case.

Mr. TANAKA. Well, first of all, in my prepared statement, Congressman, I did not intend to give the impression to this subcommittee that U.S. industry is tattered and is breaking down at the seams. Clearly, the contrary is true.

I think in view of the enormous capacity, the industrial capacity and technological capacity this country has maintained, that the contrast with Japan shows not how well Japan has done but how poorly we have done, but notwithstanding the fact that we have done poorly, I think in the absolute sense, in absolute dimensions, the United States by far leads particularly in the area of big technology. Whether you take the space area, whether you take the defense area, whether you take the electronics area, U.S. industry in the aggregate has a substantial lead. I was asked by this committee to address myself to how American industry reacts to regulatory provisions as contrasted with the Japanese.

Representative RICHMOND. Mr. Tanaka, can you tell us something about Japan's assistance to allow them to ship Japanese goods to the United States below cost?

Mr. TANAKA. Generally, in recent periods, there have not been any subsidies of any significant value granted to the steel industry or to any other industry. For example, let's take the fastener industry.

Representative RICHMOND. Let's take forgings.

Mr. TANAKA. Forgings—I don't think, to my knowledge, Congressman, there are any subsidies being granted to the forging industry.

Representative RICHMOND. How can they ship forgings to the United States at below the cost of the steel?

Mr. TANAKA. If the industry is shipping forgings to this market at prices reflecting sales of less than fair value, we have laws in place to deal with them so that the industry here can be protected from any such unfair trade practices.

If the antidumping law is not being invoked, there does not seem to be any fear that the dumping practice will seriously cripple an industry in the United States.

Representative RICHMOND. Well, that's a problem we have right now with a number of our industries, particularly forgings, where Italian and Japanese dumping is causing an awful lot of trouble in the forging industry.

You mentioned the regulatory burdens in the United States as being one of the big problems we have. There again, I don't find that the case.

You mentioned constant employee turnover. A well-run company in the United States—we have an average of 10 percent turnover a year. What's the average Japanese turnover?

Mr. TANAKA. The Japanese—you mean the worker turnover?

Representative RICHMOND. Yes.

Mr. TANAKA. As the Congressman well knows, Japanese companies have a lifetime employment system.

Representative RICHMOND. Wouldn't that work against a company in times of flux?

Mr. TANAKA. No.

Representative RICHMOND. What do they do with their employees when the work goes down 25 percent?

Mr. TANAKA. Generally, no, because the companies who practice the lifetime employment system do not hire additional workers during boom times and do hire as a continuing practice only that number of employees which they feel they can safely carry during recession years.

I think that the same employment policy can be implemented in the United States and, as a matter of fact, many of the companies in the United States, like Hewlett-Packard and IBM and so on—I can name at least 10 or 15 major companies in the United States who practice either an explicit or an implicit continuous employment system, and that means, translated, that they do not hire additional workers during boom times but rely more on their current employees working overtime to carry them through the boom times so that during recession periods or during periods when sales are down they will be able to keep those employees. And in this way these companies have developed a degree of employee loyalty which is not seen in other American companies which do not practice the continuous employment system.

Representative RICHMOND. My time is up. Thank you, Senator Hawkins.

Senator HAWKINS. Thank you.

In the interest of time, I have some more questions for Mr. Tanaka, but we will go down to Mr. Bradford and Mr. Howe and then come back to you, Mr. Tanaka.

Mr. Bradford, what chance is there for the adoption of a best-practical-technology standard in the United States?

Mr. BRADFORD. I would be hopeful that some could be accomplished as far as meeting pollution regulations in the hopes of clarifying where we stand and illuminating some of the uneconomic, overly tight regulations. This is the practice utilized outside the United States. In fact, I believe it was the original terminology in the Clean Air Act and, to my mind, makes much more sense than trying to have a constant moving target.

I can give you an example of the copper industry. The original forecasts were that the copper industry would spend something less than $100 million to clean up all the copper smelters in the United States. Well, after several hundred million dollars, the technology changed for measuring pollution and it was discovered that the industry was not meeting their requirements. Yet all best efforts were made, but it's a moving target. This is something probably that led partly to the closing of the Anaconda copper mill where the copper concentrates are now being shipped to Japan for smelting.

We have a moving target that has not helped the American industry and it would help just to stand pat for a while. Technology is wonderful and we know of pollution that we never knew about before, but at some point you have to say let us at least stand pat and meet the regulations and not try to keep moving into new areas.

Senator HAWKINS. Do you see cost savings if the best practical technology standard replaced the best available technology?

Mr. BRADFORD. Very definitely. Among other things, I think industry would be more prone to move ahead more rapidly on meeting their requirements without the fear of technological change in the process and moving ahead quicker is less costly. It also gets something done which we all, I think, desire. I don't think anybody likes pollution. Contrary to what people believe, I don't think industry likes pollution either—managements or whatever—but you need to know what to meet, what requirements are meetable and what are practical to accomplish.

In the case of the electric utilities, there were requirements for scrubbing sulphur long before the technology had been proven and proving it on a pilot plant does not make it usable in a 1,000-megawatt electric generating plant, and there have been great problems because of these maybe overly speedy attempts to utilize what might be experimental equipment.

Senator HAWKINS. It has been my experience that some of the places with major pollution are suspect. The city of Tampa, for instance, has got a 12- or 15-lane superhighway; yet, depending upon their reading, the utility company in the area has to adjust their scrubbers and their precipitators. We all know it's not a matter of how high the stack is that particular day, and yet the costs are rolled in from that utility into everybody's costs. Consumers—everybody is a consumer, whether you're a manufacturer or not, and I think maybe we should have some more realistic looking at actual pollution sources and costs. At one time, I recall, the measurement had to be so low in Florida, that no instrument was available to measure the pollution for the particular law that we had to impose. It was really ridiculous.

Would you outline any government assistance received by the steel industry in both Japan and the United States and its effect on the product development?

Mr. BRADFORD. Actually, there was a very interesting study done by the Federal Trade Commission probably in late 1977 in which they spent literally so many man-years trying to find these government subsidies in steel industries around the world.

They found essentially nothing in Japan other than the fact that Japanese interest rates are below that of the United States, and yet the companies' debt ratios, as you brought out before, are greater. Therefore, they imply a subsidy. Otherwise, they could find none.

They did find subsidies in the United States. The Army Corps of Engineers' dredging of steel industry and other industry ports they construed to be something of a subsidy, although a very minor subsidy.

In Germany, they found a negative subsidy. The German's steel industry helps to subsidize the German coal industry. In Britain, they found big subsidies. In fact, I don't think they found big enough subsidies, Clearly, British steel, as a private enterprise, would have gone the way of the flesh many years ago, running billion dollar losses, had they been a private company.

So that the subsidies involved outside the United States, except for places like Britain and now France—these type of places, according to the Federal Trade Commission—and they had a lot more time to look than I have—were not there. We have spent a lot of time analyzing both the Japanese and American steel industries. The biggest differential is wage rates. The Japanese steelworker's total employment cost is about $11.50 an hour. The average American worker is now a little bit over $8 an hour, but the average American steelworker is close to $20 an hour. Ten years ago, the American steelworker made 25 percent more than the average American worker. Now he makes almost 65 percent more.

That gap accounts for the major cost differential because this is a labor-intensive industry. It takes between 8 to 10 man-hours to make steel in the United States and probably close to 6 man-hours in Japan, but the difference in man-hours isn't anywhere near as significant as the wage differential.

Frankly, I don't blame the union for this. They are doing what a union should do, which is to maximize the benefits to its workers. I think a lot of what has been wrong is poor economic analysis whereby we seem to be of the thinking that when productivity improves in an industry the worker should get the benefit. But the worker didn't work any harder. It was capital that put in a new machine that enabled him to work faster. If you pay the worker for the benefits of a capital investment, you can't pay for the capital investment. It goes back to inadequate capital investment.

I think it goes back to the early 1960's when we got onto this kick of if productivity goes up, the worker gets the money, plus he gets the CPI inflator, and nothing goes back to invest. That's the root of the problem.

Senator Hawkins. Congressman Richmond.

Representative Richmond. Thank you, Senator.

Mr. Bradford, I think we can understand that one of the reasons the Japanese are so far ahead of us in some of these new industries is that they have been able to get their capital cheaper, longer term, easier, and much more efficiently.

Now before, I said one of the problems of American industry is management. I think we all agree that management in many cases has gotten rather flabby. Another Member of Congress was telling me yesterday that he tried to run a fundraiser in New York City on a Friday in the summer and nobody worth his salt comes to the office on Friday in the summer. If you're a top manager, you leave Thursday night for your summer residence and you don't come back until noon on Monday. Otherwise, you're kind of out of the club.

We Americans are working less and less and it's because everything goes from top to bottom, as you know, and the management sets the tone and if they don't work, why should the employees work? I think that's one problem.

As I said, the management-labor problem—we have to get rid of the idea that it's them and us. But when you get into capital formation, there, the American companies really do have a problem.

How can anybody right now afford—how can United States Steel, the second largest steel corporation in the world after Nippon I guess—how can they afford $11 billion for a steelmill? And even if they could afford the $11 billion, how could they ever pay it back? I don't think they would ever generate enough profit to pay it back.

Mr. Bradford. No; and you couldn't justify building it because the return on investment would be negative. They would lose if they would build a plant with more than a quarter of a billion dollars a year in operating costs because the cost of capital, due to inflation, the cost of construction, is so great that you can't get enough efficiency gain with a new plant to offset your new interest costs and new depreciation.

Representative Richmond. Even at 15 percent, which conceivably they could get a loan for, they would have to earn $1.65 billion a year just to pay off their debt, without any principal.

Mr. Bradford. The other thing to keep in mind——

Representative Richmond. What are we going to do with our steel industry in the United States? Let it go to the dogs?

Mr. **Bradford**. I think there are things you can do within existing mills to make them more efficient There is equipment available which the steel industry has not had money to put in but which they are attempting, and the delay of the air pollution regulations that recently passed Congress is a help. That will enable the industry to reduce its use of energy, its use of manpower to improve its yields. This is equipment called continuous casting. Japan uses it on 70 percent of their steel made; the United States uses it on only 20 percent. Even the British use it more than we do. This is probably the only piece of equipment for a steelmill you can economically justify today.

Representative **Richmond**. What would they cost?

Mr. **Bradford**. A continuous casting plant might be $100 to $250 million per plant. There are a lot of plants that need this equipment, but it's something you can't—we don't have enough engineers to put this in at all places at once.

Representative **Richmond**. Why doesn't a company like United States Steel or Bethlehem or Republic—some of our steel companies in good financial shape, why don't they convert to continuous casting?

Mr. **Bradford**. Actually, they are, with the limited capital available.

Representative **Richmond**. $150 million is not that much for these companies.

Mr. **Bradford**. But you're talking about a number of instances. We're talking about one machine. United States Steel right now is probably putting in three or four. National Steel is up to over 50 percent continuous casting.

Representative **Richmond**. Who makes the continuous casting machines?

Mr. **Bradford**. There are machinery makers—some German, some Japanese, some United States. They generally subcontract engineering to other construction companies, like a company called Concast in New Jersey. There are a few others. This is the one piece of equipment that is economically viable.

The problem is the return on the investment is so low that you're much better off putting your money in the bank or buying Treasury bills than putting it into the steel industry, and this goes back to regulation again. The steel industry is in an unfortunate position. Its economic cycle is not in line with the American cycle. It tends to be a little later because it's more capital spending related, such that when they're starting to hit their stride, we generally have an inflationary problem and they either get jawboned or get price controls. So they never get the benefits of the good years of the profitability. They only get the benefit of the bad years. So in 20 years, actually more than that, they have had only 1 year of above average profitability.

Why would anybody want to invest in something that in 19 out of 20 years is below average?

Representative **Richmond**. Average being about 25 percent?

Mr. **Bradford**. The average return to equity is 15 or 16 percent. I'm using Citibank figures. The steell industry is running under 10 percent. They are much better putting their money in the bank or buying a certificate of deposit, and there's no risk. There's a big risk in the steel business.

Representative **Richmond**. Absolutely.

Mr. **Bradford**. But in Japan, I might add, the average interest rate today is 6.25 percent. Their inflation rate is 6 percent. Yet they import all their energy. The government there is doing something about it. And that interest rate, by the way, is for all industry. It's not something special for steel. There are tax regulations that are very helpful.

Representative **Richmond**. What about productivity?

Mr. **Bradford**. In 1979, they had 15-percent productivity gain in steel.

Representative **Richmond**. We had more.

Mr..**Bradford**. We haven't had any since 1973. In steel, we haven't had any. We can't compete.

Representative **Richmond**. Let me ask one question about coal. Would you say the coal industry is in a little better shape in the United States than the steel?

Mr. **Bradford**. Consumption is growing very sharp'y. It's very attractive. The industry has overexpanded, but it is an energy source of the future.

Representative **Richmond**. The average coal mining company is better equipped, I would say, with more modern equipment, than the steel mill; wouldn't you say?

Mr. **Bradford**. Yes, definitely.

Representative **Richmond**. Thank you.

Senator **Hawkins**. Senator Abdnor has joined us and I'd like to welcome him.

Senator **Abdnor**. Thank you, Senator.

I guess we could find plenty of blame to pass around for the dilemma this country seems to be in, far more than just management, I assure you, at least in my way of thinking.

I was just going to say there aren't many areas of industry—taking away the energy and maybe financial institutions—that are doing so well that I'm aware of. Are there many areas in our industrial industry of this country that are doing quite well at this time? Would you care to answer that, Mr. Bradford?

Mr. **Bradford**. I personally am familiar with the steel and coal interest, so my view is somewhat limited, but the more technology industries are doing quite well. Medical related industries are doing quite well.

Senator **Abdnor**. Why are some doing better than others? Because of productivity, because of the product that they sell, being able to control their prices, or are there a number of reasons?

Mr. **Bradford**. For instance, in the computer industry, the costs have been falling dramatically. I just bought my own computer for my house with more capability than a million dollar machine had just a few years ago. I can assure you that I can't afford anything like that. The technology is amazing. The costs are decreasing because of good, strong growth in usage, something that the steel industry doesn't have. It makes it much more difficult to get productivity growth if the use of the material is not growing. Computer technology is growing.

Senator **Abdnor**. Mr. Howe, in your prepared statement you mentioned the detrimental effect of the U.S. antitrust laws on expansion of industry. What steps should be taken to reform the antitrust laws, do you think?

Mr. **Howe**. Well, I think serious consideration should be given to the idea of trading companies or something comparable to the Japanese trading company, which would permit various machine tool companies to put together packages for various export opportunities.

This can be done very neatly in various countries in Europe and in Japan, but in our country it is not possible because of the antitrust implications.

As we view the trading companies and their effectiveness in promoting the Japanese products, we come to the conclusion it would be very useful to have a comparable institution in this country.

I would just elaborate by saying that in addition, it would be most useful if we had what I would call an honest export trade program and policy in this country because we cannot compete, by and large, in overseas opportunities for a lot of different reasons; mainly that it's suspect in many cases when we attempt to put these programs together and, perhaps more important than anything else, is the problem of financing.

I personally have been involved in orders being lost—even within this country—in which financing is available for the customer from banks outside the United States. I think it is very unfortunate that we should lose that business because in the final analysis this means jobs and opportunities in the machine sector.

Senator **Abdnor**. You're in the machine tool business?

Mr. **Howe**. I am basically in the machine tool business; yes.

Senator **Abdnor**. You said that the United States imports more machine tools in recent years than it exports. Is part of the reason for that what you just stated here?

Mr. **Howe**. Yes; I think so. My testimony related more concretely to the tremendous accomplishments in Japan where all aspects of the country in terms of management, labor, government, and banks, if you will, work together in a very cohesive form in putting together a program to take advantage of world markets.

In our country, this has not been the case. As all of us have stated, the adversarial relationship which has existed over the years between labor and management and business and the Government has worked to our detriment in terms of taking advantage of opportunities in the overseas market.

I would like to add, however, that we have to give recognition to the fact that this country has accomplished tremendous things. Our industrial base over the years has been a marvel to the world and the envy of the whole world. I think what has happened here is that suddenly a country; namely Japan, has come along and has shown us by a greater cohesive effort, by honest collaboration among all parties, that tremendous things can be accomplished; and I guess our testimony here is basically directed toward that.

We, as managers, accept that there is a great deal that we have to do to work things out with labor, just as Congressman Richmond has suggested. I think that if we want to look at the situation there is enough blame for everybody to go around. We are not interested in assessing blame. What we really need in this country is the resurgence of the spirit that created this tremendous industrial base. We are here to say that this can be done, but we are suggesting there are certain key measures that would be most helpful to us toward accomplishing that. We speak about the improvement of capital recovery, which you are considering at the present time; the encouragement and incentives for more research and development of technology; and what I call an honest export trade policy which I think is essential to this country. I think it's ridiculous not to have one. And I think an improvement is necessary in the regulatory aspect of business and industry, which we have all testified to.

These are all things which would be significantly helpful and would then put us in a much better position to be competitive in this world. And I'm not a bit concerned about whether the United States has the technology. I am very concerned about how to make it grow and blossom and we see these suggestions as logical solutions in order to accomplish the purpose that we are all after.

Senator ABDNOR. I'm going to have to concur with your thinking. Mr. Howe, to what extent would you say trade restrictions of other nations have hurt the sale of machine tools overseas? Has that been a factor at all?

Mr. HOWE. Yes, it has been a factor, although I'm not really prepared to address that in any kind of detail. I think there are problems clearly, for example, in the exporting of machine tools into Japan. These are subtle barriers that exist. I think it would be more appropriate perhaps to look at what happens in terms of the automotive exports to Japan, and that's all well documented on terms of the additional taxation and so forth that takes place internally in Japan once the car hits the dock. But I can't answer you specifically.

Senator ABDNOR. I think maybe that is an area that is worth looking at, the comparison of the countries and trade restrictions that different ones have versus the others. I have observed this on agricultural products and other things in the past.

Has the United States machine tool industry made financial investments in the Japanese machine tool industry?

Mr. HOWE. In the Japanese machine tool industry?

Senator ABDNOR. Yes. Have the people in the tool business in this country made financial investments in the Japanese tool industry?

Mr. HOWE. In Japan?

Senator ABDNOR. Yes.

Mr. HOWE. To a limited degree, but, to the best of my knowledge, this has been restricted to ownership of less than 50 percent in companies set up in Japan.

Senator ABDNOR. Is that a rule?

Mr. HOWE. I believe that's the current rule.

Senator ABDNOR. I see my time has expired. Thank you.

Mr. HOWE. May I just add one thing in connection with your question about this business of the export restrictions? We do put considerable restrictions upon ourselves, Senator, which I have mentioned in my testimony, in terms of our requirements to get permission and license approvals to ship certain types of equipment to Eastern bloc countries. In the meantime, other countries, presumably working under the Cocom regulations, do not necessarily respect this in the same way. More importantly there is a tremendous time delay in terms of getting licenses approved, and this has hurt us considerably in terms of developing export business.

Senator ABDNOR. Do you think it's for a good reason?

Mr. HOWE. I see no reason as to why it should take so long. I think it's the timing more than anything else that has been very difficult.

Senator ABDNOR. Thank you.

Senator HAWKINS. Senator Proxmire has joined us.

Senator PROXMIRE. Thank you, Senator.

I'd like to ask you two questions. One—any of you gentlemen can answer this and perhaps Mr. Tanaka can answer it satisfactorily. In the current issue of Newsweek there's a column by Lester Thurow, who's a brilliant young economist at Columbia University, in which he says he went to Japan and talked to a number of employers, people who employed 10 people, 20 people, 500 people, 2,000 people. In every case, he asked, "Did you ever fire anybody?" The answer is universally, "No." They had never fired anybody at all, no matter how incompetent, no matter how irresponsible they were. He asked, "Don't you have some people who would be so counterproductive that you would be better off without them?" They said, "Yes; we have people like that." What do you do? "We feel that's a Japanese responsibility. We feel that's part of our job. We have to give them the motivation. We have to work with them very carefully, even perhaps talk to their family. We have to do our best to see that they are straightened out. We do not fire them."

Now was this observation of Thurow accurate, in your judgment? And, if so, do you feel the United States could benefit from that kind of policy if our corporations took on that responsibility?

Mr. TANAKA. Well, Senator, if I might respond to that, I think you have to start by analyzing the sharp difference in the structure of the labor market. The Japanese have what is known as an indigenous or internal labor market. In other words, there is very little lateral entry into the company.

We have an external labor market where the companies go out and recruit workers who have the requisite skills. Our companies in this country don't train their workers. They look for trained workers. So this is the reason why, whenever there's a shortage of a particular type of skill, the salaries or wages of those workers escalate and get structured into the production process and add to the inflationary bias.

Distinguish this from the situation in the case of Japan where you have an internal labor market, where the labor market for each company is coextensive with the number of employees that they employ, and in a situation like that you have no lateral entries at any level above the recruiting stage. The companies take people right out of high school for their plantworkers and companies take people right out of college, completely untrained, who are recruited into the organization, who are given a sense of employment security and who are then trained in company-specific skills. If the company has a particular method of production the company is then able to train them.

It costs the company more to bring in a skilled worker and to retrain him in company-specific skills than to hire a raw recruit without any training and to train him in company-specific skills.

Senator PROXMIRE. You asnwered part of my question and you answered it extremely well, but the other part of the question I had in mind was the sense that the Japanese seem to have a feeling that they will stay with a person no matter what his personal problems are—alcoholic or somebody who has some sad and serious domestic problem—they will stick with this person. They feel it is their responsibility to work with him, stay with him, and so forth.

There are some of our companies that do the same thing, I am sure, but, in general, his argument was this, that Japan has much less of a welfare program, a program to try to provide jobs for people who seem to be unable to fit into the industrial scheme, because the corporations themselves take on much of that.

Mr. **Tanaka**. Yes.

Senator **Proxmire**. Not only in training, but in the other aspects of helping a disturbed personality or a personality that isn't adjusted, and they have a lot of success with it.

Mr. **Tanaka**. Yes. The Japanese companies don't hire or recruit any more workers than they can carry reasonably during a period of recession. So that there is no hiring and firing practice such as typifies the American corporations' practice with respect to workers. A worker hired by a company stays with the company generally on a lifetime basis and if he turns out to be incompetent, what the company does is to shift him to a staff position so that the decisionmaking process is not deterred by an incompetent employee participating in that decisionmaking process.

Senator **Proxmire**. So he's shifted to an area that he can handle?

Mr. **Tanaka**. They are taken off the line jobs. They are taken off of decisionmaking jobs and shifted laterally to staff positions as advisers to section chiefs and so on, so that they do not damage or render less efficient the decisionmaking process.

Senator **Proxmire**. Thank you very much.

Now I'd like to ask Mr. Howe, you were speaking of trading companies and the fact that the Japanese have them and other countries have them and we don't have them.

In the Banking Committee we have had two problems with that. One is whether or not the trading company should be owned by banks. There is a difference of opinion as to whether or not—the Federal Reserve, for example, says banks should be able to have a participation, have some equity participation up to maybe 20 percent, but not ownership. And the reason for that is because we have a long tradition, as you know, in this country of separating banking from commerce and it's worked fairly well.

Obviously, a firm that is owned by a bank is in a very advantageous position for credit, especially these days, but in any kind of a credit squeeze situation. So that's one problem we have.

The Federal Reserve has asked that we not permit a 100-percent ownership or 51-percent ownership for that matter of the trading companies by the banks.

The other is the amendment of the Webb-Pomerene Act which would take jurisdiction for trading companies away from the Justice Department to the extent the trading companies get involved in matters that abridge antitrust laws and give that to the Commerce Department.

The Commerce Department has no expertise, no record, in enforcing antitrust. The Justice Department does. That is their business, their job. So that there is some resistance on that score, too.

Some of us do not think that the banks should become involved in commerce because that would be disadvantageous and unfair and we do not think our antitrust laws should be abridged in this way.

What's your response to that?

Mr. HOWE. Just a personal opinion, because I have not studied this question; my inclination would be to work through the Commerce Department in some fashion. The question of who would direct traffic, I guess, is really what we are talking about, and it seems to me this should fall initially in the Commerce Department.

Senator PROXMIRE. Let's separate these. The first question is whether or not the banks should be allowed to own trading companies. What's your position on that? Do you feel the trading companies could operate without having the banks actually own 100 percent or 51 percent?

Mr. HOWE. I have trouble with this question because I have not studied the subject. From a commercial standpoint, which is the way I prefer to answer this, my concern would only be that there could be the logical collaboration to get the job done, No. 1; and No. 2, that financing would be made available to the exporting companies which would be competitive with what is offered by other countries.

Senator PROXMIRE. How would you feel as a competitor if your competitor was owned by a bank these days? Wouldn't you feel it's a disadvantage? Wouldn't you feel he could get credit more easily than you could?

Mr. HOWE. Yes, I think that's a point.

Senator PROXMIRE. That's what worries the Federal Reserve.

Mr. HOWE. Yes, but if banks are not permitted to control ETC's, they will be reluctant to risk their depositors' funds by investing in ETC's at all.

Senator PROXMIRE. Then the second point on the Webo-Pomerene amendment, I am not clear in my mind what you recommend. Isn't it true that the Justice Department and the Justice Department alone has the expertise, the experience, the record in prosecuting antitrust, and if we transfer that responsibility away from the Justice Department to Commerce that we are unlikely to get a consistent antitrust policy, No. 1; and get a competent antitrust policy, No. 2?

Mr. HOWE. Well, I think that's a reasonable concern. I am not at all sure that something could not be set up to accommodate that concern. I frankly do not have an answer to that question. I think it is a reasonable concern.

I think in the final analysis, Senator, other countries are able to work these things out. They are able to benefit by these opportunities overseas and we are unable to do so for the reasons that we stated.

Senator PROXMIRE. Let me just finally ask Mr. Tanaka, can you tell us what you think we could realistically expect to persuade our corporations to do, if anything, to provide for greater stability of employment and a greater sense of responsibility for the employee to bring it in line with the fine accomplishments in Japan in this area?

Mr. TANAKA. I think that in this country there is a tendency to resort to the Government, as it has been so called—the desire to ask the Government to put a safety net under the industry, instead of the industry taking on more responsibilities, particularly responsibilities in the social area for employees and so on. I think that these responsibilities, if discharged appropriately, will result in greater employee loyalty and lesser absenteeism, in less incidence and lower incidences of sabotage and so on, because the employee, as a result of the fact that the company tends to their sicknesses, their illnesses and so on and so forth, will view the company, the management—rather than view it adversarily—view it in a common interest position. That is to say, develop greater commonality of interest in their perception than now obtains, and this is what the Japanese companies have taken advantage of in order to increase the worker productivity, decrease absenteeism, and so on.

Senator **Proxmire**. Thank you very much.

Thank you, Senator.

Senator **Hawkins**. Congressman Richmond has to leave. He wants to ask another question.

Representative **Richmond**. Thank you very much.

Mr. Howe, I would like to sit here and talk to you for a great deal of time, because as you know I started business with Baker Bros. back in 1949 and I love the machine tool industry.

Mr. **Howe**. That's what I understand.

Representative **Richmond**. I just want to ask one question.

You want further research and development incentives. Under our present tax code where research and development is totally deductible, what incentives could we offer a company? Clearly, we Americans have got to become more research and development minded.

Mr. **Howe**. Correct.

Representative **Richmond**. What more incentives could we offer to be more research minded than the total deductibility of all research and development?

Mr. **Howe**. Well, I understand there is some sort of an additional tax incentive, through a tax credit, under consideration.

Representative **Richmond**. Do you think that's necessary? We do not pay a penny on our research and development. It's all deductible. Don't you think the Government is our 50-percent partner as it is in the field of research and development?

Mr. **Howe**. I think I would look at that as a piece of a total package. It is a good deal like the capital recovery question. Ideally, in my humble opinion, we would expense the cost of capital equipment in the year it is bought. All the measures which I outlined previously add up to a total package which I think is of fundamental importance if we are to re-create this industrial surge that we are capable of performing.

Representative **Richmond**. Are you happy with the new tax bill coming before us? As you know, the Democratic and Republican bills are very much the same for business on depreciation.

Mr. **Howe**. I am a little uncertain which one you mean. There are some differences as to depreciation, as I understand it.

Representative **Richmond**. Which one do you like?

Mr. **Howe**. Let us depreciate our capital equipment in the year we buy it. That would be a superb thing to have and add tremendously to this capital recovery aspect.

Representative **Richmond**. Senator Proxmire says that is the Democratic one.

Senator **Hawkins**. Thank you.

I would like to ask each of you, in your experience, what part does the media play in Japan regarding business-government relationships?

Mr. **Tanaka**. Well, I haven't studied that question, Senator, but certainly I suppose the media is every bit as vocal in Japan as it is in this country. However, as was pointed out earlier in my statement, much of the resolution of disputes between various components of the economy and between industry and Government tends to be resolved in a consensual manner so that there is very little newsworthy developments which occur. Certainly if someone sues—the Government sues a company and so on, this would lend itself to considerable adverse press publicity to the respondent, but this is the type of thing—news generated by litigation is something which one does not see in Japan.

Senator HAWKINS. Mr. Howe, what was your observation?

Mr. HOWE. I am afraid I am not equipped to answer that question. I spent all of 11 days over there and although that poses me as the world's leading expert on machine tools in Japan, it does not provide an answer for that.

I would like very much to comment on another question, if I might, which was posed by Senator Proxmire a few minutes ago, and that was in connection with the feeling and the responsible attitude which managements have toward workers in terms of taking care of them when they have problems.

I would just like to comment that in this country—and I speak really of machine tools which is a high technology type of industry—the problem that we encounter initially is that there are no young, trained apprentices who are available or people to be apprentices coming through our school system. This represents a considerable difference.

In Japan, the technical high schools— and I think Mr. Tanaka would agree—do a tremendous job of preparing the individuals, the young students, for opportunities in industry. There is tremendous enthusiasm for entering into these industries and I'd have to say I have to speak primarily of the machine tool companies which I visited.

In our country, unfortunately, there is a tremendous shortage of young people coming along who have the basic interests in the technologies required and it's a very unfortunate thing. It represents a shortcoming on the part of the educational system and probably on the part of us as parents initially. But it's unfortunate that industry, and in particular machine tool industries are not held in highest esteem. There may be good reason for this. The machine tool industry, which has had a considerable expansionary program in recent years as you know, has had a terrible time in terms of locating skilled workers or trained workers. All the healthy machine tool companies that I'm aware of have their own in-house training programs. These are extremely expensive because we literally are forced to take people who have no basic background in math or any drafting or skills of that sort and bring them up from ground zero.

We are glad to do that, but there are limitations in terms of what industry can itself accomplish. I think it's unfortunate in this country that there isn't more enthusiasm for technologies and the opportunities exist. Perhaps we are all to blame for that, but that's a very serious difference. What that has meant is there is a tremendous passage through of individuals trying to be trained, getting interested, and then becoming disinterested. That's one of the major reasons for the turnover in American industry, particularly in the machine tool industry.

Senator **Proxmire**. Would the Senator yield?

Senator **Hawkins**. Yes.

Senator **Proxmire**. I congratulate you on that statement, Mr. Howe and I couldn't agree with you more. You're absolutely correct. We take great pride in Wisconsin in our machine tool industry and also in our terrific interest in technical and vocational education. We stress that very, very strongly. But I think you're right, that you and Mr. Tanaka are not talking about people who are trained, skilled experts when they come into the company.

In Japan, Mr. Tanaka said the company took care of that, They did the training. But you have apprentices who come in who have at least the fundamental mathematics and the background that can make them good material.

Mr. **Howe**. We call it a minimum threshold, and by that I mean if we find applicants for employment in our technical, high technology companies who will pass the minimum threshold, it really means that basic interest has been created and some of the groundwork has been done in the schools. If we could find more of those, we in industry could do a better job.

In Japan, that minimum threshold, in my opinion, has been passed by everybody who comes to apply and is recruited in fact into a machine tool company. They do a magnificent job of recruiting, but there's tremendous underlying enthusiasm for getting into something like a machine tool company.

Senator **Hawkins**. I'd like to ask Mr. Howe just one question on the future.

From what I've read and studied in industrial progress, it will be based in the future on robot processes instead of the electric motor. Do you feel the Japanese companies are better prepared to deal with this massive change in terms of people and investment? And, if so, why?

Mr. **Howe**. Well, first of all, let's talk about the technology. There's nothing that they are doing or currently contemplating, to my knowledge, which we can't in turn accomplish right here.

No. 2, in terms of attitudes toward the acceptance of robots displacing people—you've heard that before and that's rather self-evident. I think managements have to go about this thing in a sensible way, as I think the labor unions as well must accept forward progress, and I think there's evidence in this country of considerable amount of progress in this direction. I'm not a pessimist.

Senator **Hawkins**. Mr. Tanaka, could you estimate the probable growth of the Japanese robot industry in the next 10 years and its effect on employment?

Mr. **Tanaka**. I don't have the figures here, but I'd like to reserve that and respond in writing to you.

Senator **Hawkins**. That would be fine. Also, in the reply, would you signify if you feel there are going to be any significant quantities exported to the United States?

Mr. **Tanaka**. Yes; those figures I don't have at my fingertips, but if I may, with your permission, I could submit them in writing to you.

Senator **Hawkins**. Sure.

[The following information was subsequently supplied for the record:]

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September 8, 1981

Dr. Douglas Ross
Joint Economic Committee
G133 Dirksen Senate Office Bldg.
Washington, D.C. 20510

Dear Dr. Ross:

During the hearing before the Subcommittee on Trade, Productivity and Economic Growth of the Joint Economic Committee at which I testified on July 28, 1981, Senator Hawkins asked if I could estimate the probable growth of the Japanese robot industry in the next ten years, the likely effect of such growth of employment, and the probable level of exports to the United States, if significant. I offered to submit this information in writing for the record.

In view of the rapid growth of robotics in the past several years, as well as the extraordinary shifts in both the world economy and product demand which we have witnessed over the past decade, ten-year projections in this field are likely to be hazardous at best. With this caveat in mind, and using the American definition of an industrial robot, which is more restrictive than the Japanese definition, it is estimated that Japanese industrial robot production will rise from some 3,200 units in 1980, valued at $180 million, to 57,450 units in 1990 valued at $4.45 billion. (The dollar values for both years assume a single exchange rate of ¥200 = $1.00.)

Although Japanese exports of robots were less than 2 percent of production in 1980, it now seems clear that Japan intends to be a major exporter of these machines. It has been estimated that exports will constitute approximately 20 percent of Japanese production by 1990. The United States will obviously be a major market for these exports, but I have seen no breakdown by country of the over-all 20 percent export figure for 1990.

As for the employment effects of Japanese industrial robot production and sales, the shortage of labor in Japan has been such that the introduction of robots has had no noticeable effect to date. Nevertheless some Japanese economists reportedly fear that the increase in industrial robots might result in an unemployment problem after 1990.

I enclose a copy of a report by Paul Aron, Executive Vice President of Daiwa Securities America Inc., dated July 28, 1981 and entitled "Robots Revisited: One Year Later," which was the principal source of the foregoing information.

I hope this information is responsive to Senator Hawkins' questions. If I can be of further assistance, please do not hesitate to call on me.

Sincerely,

H. W. Tanaka

HWT:mo
Enclosure

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[illegible]

July 28, 1981

Paul Aron Report (#25): ROBOTS REVISITED: ONE YEAR LATER

Introduction: Statistics and Definitions

Just about one year ago I issued the Paul Aron Report #22 "Robotics in Japan" which aroused considerable interest as the first serious and comprehensive study by an American analyst. In a note to that Report, I wrote: "Of course, one could continue to search for additional data which would probably improve the presentation. In view of the extensive American discussion of productivity and the spate of articles on robots, excellent though insufficiently attentive to Japan's experience, timeliness demanded the publication of what we know now. Thus, as with all learning, the report must be considered tentative and preliminary not exhaustive". This note could well be descriptive of this current report. This report is an update but to facilitate reading, I have included the relevant material from the previous report. (Report # 22 is still available on request).

In reexamining the conclusions of my earlier effort, viewed at the time by some as overly optimistic, I find that the report, while basically correct, understated the tempo of growth. The Japanese industrial robot industry is growing at a faster pace than anyone had previously estimated. The original forecast by the Japan Industrial Robot Industry Association (JIRA) for 1979 shipments was ¥ 36 billion (about $ 180 million); actual shipments amounted to ¥ 42.4 billion, exceeding the original estimate by 17.8%. JIRA had initially estimated shipments for 1980 at ¥ 43 billion; later it revised the forecast upwards by 39.5% to ¥ 65 billion. In actuality, shipments were ¥ 78.4 billion (about $ 392 million) fully 82.3% above the original estimate. JIRA is now estimating shipments for 1981 in excess of ¥ 100 billion (about $ 500 million) and for 1985 approximately ¥ 500 billion (about $ 2.5 billion). For 1990 the current "unofficial" estimate is ¥ 1 trillion (about $ 5 billion). These estimates should be compared with the initial JIRA estimate in early 1980 of ¥ 195 billion for 1985 which many critics argued could not be achieved until 1990. Even JIRA has difficulty keeping up with the forecasts as late in 1980 it was estimating shipments of ¥ 240 - 300 billion for 1985 and ¥ 450 - 600 billion for 1990.

This notice does not constitute an offer to sell or the solicitation of an offer to buy any securities. The information herein has been obtained from sources that we believe to be reliable, but it is not guaranteed as to accuracy or completeness, and is not to be construed as a representation by Daiwa Securities America Inc.

TABLE I

Industrial Robot Production Value

Year	¥ Billion	$ Million
1968	.4	
1969	1.5	
1970	4.9	
1971	4.3	
1972	6.1	
1973	9.3	
1974	11.4	
1975	11.1	
1976	14.1	
1977	21.6	
1978	24.7	
1979	42.4	
1980	78.4	392
1981E	100.0+	500
1985E	500.0	2,500
1990E	1,000.0	5,000

**Exchange Rate: ¥ 200 = $ 1.00

(For convenience only, I have used a single exchange rate of ¥ 200 = $ 1.00 throughout the report for the past, present and future.)

It may be argued that Japanese data on robots is confusing to Americans because of a difference in definitions. The Electric Machinery Law of 1971 in Japan defined an industrial robot as an all purpose machine, equipped with a memory device, and a terminal device (for holding things) and capable of rotation and of replacing human labor by automatic performance of movements. JIRA classifies industrial robots by the method of input information and teaching as follows:

1) manual manipulator--a manipulator that is worked by an operator.

2) fixed sequence robot--a manipulator which repetitively performs

successive steps of a given operation according to a predetermined sequence, condition, and position, and whose set information cannot be easily changed.

3) variable sequence robot--a manipulator which repetitively performs successive steps of a given operation according to a predetermined sequence, condition, and position, and whose set information can be easily changed.

4) playback robot--a manipulator which can produce from memory, operations originally executed under human control. A human operator initially operates the robot in order to input instructions. All the information relevant to the operations (sequence, conditions, and positions) is put in memory. When needed, this information is recalled (or played back, hence, its name) and the operations are repetitively executed automatically from memory.

5) NC (numerical control) robot--a manipulator that can perform a given task according to the sequence, conditions and position, as commanded via numerical data. The software used for these robots include punched tapes, cards, and digital switches. This robot has the same control mode as an N.C. machine.

6) intelligent robot--this robot with sensory perception (visual and/or tactile) can detect changes by itself in the work environment or work condition and, by its own decision-making faculty, proceed with its operation accordingly.

I have used three different robot definitions:

(1) "Robots by Japanese Definition"--all 6 classes

(2) "Robots by U.S. Definition"--classes 3,4,5,6

(3) "Sophisticated Robots"--classes 4,5,6

The American Robot Industry Association (RIA) defines a robot as "a manipulator designed to move material, parts, tools, or specialized devices, through variable programmed motions for the performance of a variety of tasks." Thus, the U.S. definition of robots eliminates the manual manipulators and fixed sequence machines.

The following is a breakdown by the nature of input information and teaching (in yen value).

TABLE 2

Share in Total Shipment

By Nature of Teaching and Input Information

	1974	1975	1976	1977	1978	1979	First Half F.Y. 1980
1) Manual Manipulator	6.5%	7.8%	11.4%	8.7%	5.6%	5.0%	7.8%
2) Fixed Sequence Robot	68.0	73.0	47.6	39.0	37.1	47.0	35.8
3) Variable Sequence Robot			6.9	10.9	14.6	18.0	13.3
4) Playback Robot	10.5	10.2	12.7	18.0	17.4	17.0	25.0
5) NC Robot	0.2		0.4	0.4	0.5	4.0	2.6
6) Intelligent Robot	0.1	1.7	6.2	10.3	12.2	9.0	9.9
7) Attachments	14.7	7.2	12.8	12.7	12.6	----	5.6
	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The sophisticated robots clearly represents an increasing share of production--37.5% by the first half of 1980 compared to only 10.8% in 1974.

Data is available for the number of units per type produced in 1979 and the number of robots installed and working at the end of 1979.

TABLE 3

Shipments of Industrial Robots - 1979

Type	Units	Value (¥ Million)
Manual Manipulator	1,051	2,100
Fixed Sequence Robot	10,721	19,990
Variable Sequence Robot	1,224	7,700
Playback Robot	662	7,200
NC Robot	89	1,700
Intelligent Robot	788	3,800
	14,535 units	42,400

TABLE 4

Industrial Robots - Installed and Operating

12/31/79

Manual Manipulator	7,290
Fixed & Variable Sequence Robot	45,760
Playback & NC Robot	2,410
Intelligent Robot	788
	56,800 units

As JIRA previously had not differentiated fixed and variable sequence robots, the number of operating variable sequence robots installed in 1979 must be estimated. I prefer the more conservative estimate of 4300 rather than the higher 10,250.

Final data is not yet available for 1980 but, based on the latest preliminary data shipments and installed working robots at the end of 1980 can be estimated as follows:

TABLE 5

Industrial Robots - Installed and Operating (Estimated)

12/31/80

		Units
1)	Manual Manipulator	8,790
2)	Fixed Sequence Robot	56,460
3)	Variable Sequence Robot	6,100
4&5)	Playback & NC Robot	3,460
6)	Intelligent Robot	1,690
	Total	76,500

TABLE 6

Shipments of Industrial Robots Estimated

1980

		Units
1)	Manual Manipulator	1,500
2)	Fixed Sequence Robot	15,000
3)	Variable Sequence Robot	1,800
4)	Playback Robot	900
5)	NC Robot	150
6)	Intelligent Robot	350
	Total	19,700

Using the more restrictive U.S. definition of industrial robots, the following chart compares the relative positions.

TABLE 6A

U.S. - Japan Comparison

Industrial Robots

1980

		Japan	U.S.
Production in Units	1980	3,200	1,269
Production in Value ($ Mil.)	1980	180	100
Installed Operating Units	12/31/80	11,250	4,370

The most optimistic estimates for U.S. production in 1980 is 1,500 and for U.S. installed robots 5,000 but even if this estimate were correct the U.S. position is hardly altered.

In 1980 the United States probably placed third in the unit production of industrial robots--the Soviet Union produced an estimated 2,000 - 3,000 industrial robots. Soviet production, however, tends to concentrate on the less sophisticated robots. Somehow, Americans seem to have taken comfort with an estimate published in Time in December 1980, of 25 robots in the Soviet Union (at the very moment that the Soviet Union was producing about 70 different robot models). Incidentally, Soviet robotics began even later than Japan--in 1971-72 the first three Soviet robots were produced. The United States produced its first robot in 1961--a Unimate based on a patent originally issued in 1954. It was only in 1967 that Tokyo Machinery Trading Co. started to import and sell a Versatran robot, then produced by AMF, Inc. In November, 1968, Kawasaki Heavy Industries concluded a technology license agreement with Unimation and in 1969 began to produce robots in Japan. Thus, the U.S. enjoyed at least an eight year lead over Japan and a ten year lead over the Soviet Union.

What does the future hold?--My estimates or better "guestimates" for Japan is necessarily very tentative.

TABLE 7

Japanese Industrial Robot Demand Forecast--Paul Aron

In Units

	1980(E)	1985(E)	1990(E)
Manual Manipulator	1,500	6,000	12,000
Fixed Sequence	15,000	30,000	45,000
Variable Sequence	1,800	14,000	18,650
Playback	900	6,500	13,000
NC Robot	150	1,400	2,800
Intelligent	350	10,000	23,000
Total	19,700	67,900	114,450

TABLE 8 (Japanese Industrial Robot Demand Forecast--Paul Aron[cont.])

In Value - Billion ¥

	1980(E)		1985(E)		1990(E)	
	(¥)	(%)	(¥)	(%)	(¥)	(%)
Manual Manipulator	3.0	3.8	10	2	20	2
Fixed Sequence	38.4	49.0	60	12	90	9
Variable Sequence	12.0	15.3	75	15	100	10
Playback	12.1	15.4	70	14	140	14
NC Robot	3.7	4.7	15	3	30	3
Intelligent	4.9	6.3	120	24	280	28
Auxiliary Equipment	3.0	3.8	70	14	140	14
Export	1.2	1.5	80	16	200	20
Total	78.4	100 %	500	100%	1,000	100%

Using the more restrictive American definition of robots, Japanese industrial robot production is estimated to achieve a unit output of 31,900 with a value of $ 2.15 billion in 1985 and 57,450 units and $ 4.45 billion in 1990. If this were to occur, Japanese output in 1985 would be four times greater in units and value than the most optimistic forecast for the U.S.

Why have industrial robots enjoyed such success in Japan and why do the Japanese place such high confidence in their future?

LABOR:

Japan's success in robot production and installation can be traced, in large measure, to its labor practices. The Japanese employees in major corporations are guaranteed lifetime employment (until the age of 55-60). In addition, all employees receive two bonuses, each ranging from 2-5 months pay, in June and December, which, while negotiated between the union and management, are ultimately based upon the company profitability. The Japanese union is not based on crafts, skills or occupations: the union is on a company wide basis and covers all member of the bargaining unit. Employees identify with the company, not with a skill and they are often shifted from one job to another within the company. The worker, not fearing loss of employment, does not oppose automation; in addition, as automated production generally enhances quality and profit and consequently the bonus, the Japanese employees welcome the robots. In Japan the company assumes the responsibility for retraining the employees who have been displaced by the robots. The large companies, at least in the last 20-25 years have assumed the responsibility of training and retraining their employees; lifetime employment deprives most companies of the opportunity to recruit skilled workers from other companies and therefore, necessitates training. Not fearing the loss of trained workers, companies are encouraged to devote considerable effort to training programs. Finally, as robots are used in dangerous, unhealthy and repetitive jobs, the employees consider production by robots as a means of relieving monotonous and environmentally harmful tasks in manufacturing. Employees, displaced by robots, have moved to jobs, more challenging intellectually and less demanding physically.

The practice of QC circles has played an important role in developing employee participation in problem-solving. They are voluntary teams of 8-10 employees who began in the mid-sixties to study quality problems and to suggest improvements. These teams expanded their range of activity from quality to many other areas including productivity, especially during the seventies. Studies indicate that both the unions and particularly the QC circles have often been involved in introducing robots into plants. It should be no surprise that those companies which have the most active QC circles are also the leaders in robotization. Of course, the relatively high tempo of real economic growth in Japan, with its consequent demand for increased labor, has more than compensated for the losses of jobs resulting from increasing productivity, automation, and robot introduction. Some Japanese economists, however, are already warning that the saturation by industrial robots might create an unemployment problem in the 1990's.

The Japanese seem to believe that they displaced the U.S. as the "Number One" in robot production largely because of the labor problem. In America and Western Europe, the introduction of robots is frequently debated and the crucial point in such debates is the unemployment problem. This is rarely discussed in Japan and instead the positive effects of robots are discussed: improvement of quality and productivity and greater safety for the employees. Stress is placed on the new opportunities for greater and higher level employment, as robot operators, robot maintenance workers, and "software engineers", and for opportunities in new industries such as ocean resource gathering made possible by robots. Unlike Japan, few U.S. companies have assumed the responsibility for retraining workers that could be displaced by robots. Furthermore, the American worker does not directly benefit from the increased savings and profit created by robotics. It is interesting that the TV program on productivity ("If Japan can do it, etc.") omitted any discussion of the bonus in Japan.

COSTS OF LABOR AND ROBOTS

The advantages of industrial robots can be better understood in the context of the relationship of labor costs and robot costs. The accomplishments of the robot introduction in Japan from 1968 to 1973 were not promising because of the wide divergence of labor and robot costs. Before the 1973 "Oil Shock", Japanese labor costs were still relatively inexpensive while industrial robots were still high-priced because of the low level of electronic development. During the decade of the seventies labor costs rose sharply in Japan. The manufacturing cost of industrial robots of all types at first declined from 1970-1975. After 1975, the price of the simpler and less electronic "robots" rose, but the "semiconductor revolution" in Japan continued to reduce the cost of the more sophisticated robots. The following table based on a JIRA survey is revealing.

TABLE 9

Ratio of Robot Costs to Labor Costs

(Unit - ¥ 1000)

Total		1970	1975	1978
A.	Labor Cost Per Man	990	2,300	3,000
B.	Average Price -- Robot (Japanese definition)	4,600	4,100	5,000
C.	Cost -- Playback Robot	12,000	11,000	11,000
	Ratio B/A	4.6	1.8	1.7
	Ratio C/A	12.1	4.8	3.7

The decline of robot costs relative to labor costs is especially sharp in the field of sophisticated robots. Superficially, a playback robot can be amortized within four years on a single shift and within two years on a double shift. The actual expenses of robot installation and maintenance resulted in a slower rate of amortization. In the future, labor costs are expected to increase 6 - 7% annually while robot costs, thanks to declining microprocessor prices, should remain level or decline.

In a questionnaire distributed by JIRA on the motives for installing industrial robots in the future, the responses in order of importance were as follows: (1) economic advantage, (2) increased worker safety, (3) universalization of production systems, (4) stable product quality, and (5) labor shortage.

Hence, the economic advantage of the industrial robot over human labor which seems certain to grow in the future is considered the most important factor in the increased application of industrial robots.

MANAGEMENT

Japanese management on all levels has been more responsive to the introduction of robots than their American counterparts. Life-time employment has created greater security and a more long-range attitude among Japanese managers. The absence of stock options reinforces this attitude. Japanese managers are able to tolerate the high initial costs of incorporating robots into production and are willing to accept a much longer payoff than their American counterparts. In the first year of robot introduction, costs can be very high--not only increases in depreciation, interest costs, and miscellaneous costs related to the robot (changes in the plant and its equipment to accomodate the robots), but also interference and slowdowns in production while the robot is being fully integrated into production. In one case study in Japan, for example, the company had anticipated that robots would increase production, and thus would permit write-off of all costs within the first year. Instead, production declined and total costs grew by 30%. Similar experiences have caused many American managers to abandon their robot program. But the Japanese persisted and at the end of the second year total costs were 25% less than if the product had continued to be produced manually.

Japanese managers are generalists, often shifted from one area to another that bears little relationship to their previous experience. On the other hand, American managers tend to be specialists and stay within one area of work during their entire career. This, at times, creates opposition, if not hostility, to a novelty such as a robot that might undermine their position. American reports are replete with tales of opposition to robots by middle and lower managers and conflicts between manufacturing engineers seeking to introduce new technology and production departments seeking to maximize current production and intolerant of any interference in output. Even the front line of management-the foreman-often see the robot as a threat to their status especially when the robot requires "care and feeding" by an inexperienced youth with a training in electronics who substitutes knowledge for strength.

In an atmosphere of relatively high interest rates the financial side of U.S. management constantly seeks shorter and shorter payouts and American roboticists often see these "bean counters" as their enemy. The non-adversary relationship and the long-term outlook which pervades the Japanese company has successfully coped with the issues of robot introduction.

American and European companies were also, to some extent, sidetracked in robotics as they had been in the production of numerical control machinery. The Americans developed very expensive and very complicated NC machines so that when the computer broke down, the entire machine, virtually a machine shop in itself, halted. The Japanese developed smaller, simpler, less expensive machines that catered to small-scale production and could produce in small batches. In robotics the European and American producers often concentrated on the most expensive robots and permitted the Japanese to develop robotics gradually from the unsophisticated manual manipulators to more complex systems that incorporate "intelligence".

INDUSTRY STRUCTURE FOR INDUSTRIAL ROBOTS

At present about 130-140 firms in Japan are manufacturing robots of whom 37 are members of the JIRA. Most large manufacturers, actual or potential, are JIRA members but some important exceptions should be noted--Matsushita Electric Industries, Osaka Transformer Corporation, Seiko, and the pen manufacturers.

The existing robot makers are widely distributed over the whole range of business scales. In size of capitalization, robot makers are broadly distributed from small firms to giant corporations. In examining the table below, the 55 small companies with less than ¥ 100 million capitalization (equal to about $ 500,000) represents 41.4% of the enterprises; the medium firms with (¥ 100 - 300 million) represent 23.3%, while the firms with over ¥ 3 billion capitalization (equal to about $ 15,000,000) represent 35.3% of the corporations. The same trend is evident when we examine the robot makers by number of employees. The small firms with less than 500 employees represent 46.6% of the total, the medium firms with 500 to 5000, 30.1%, and the giant firms with over 5000 employees, 23.3%. This data, based on a JIRA survey in 1979, of 133 robot makers, is shown below:

TABLE 10

Industrial Robot Maker Distribution

By Size of Capital

Less than ¥ 10 million	19 companies	14.3 %
¥ 10 million - ¥ 100 million	36 companies	27.1 %
¥ 100 million - ¥ 1 billion	23 companies	17.3 %
¥ 1 billion - ¥ 3 billion	8 companies	6.0 %
More than ¥ 3 billion	47 companies	35.3 %
Total	133 companies	100.0 %

TABLE 11

Industrial Robot Maker Distribution

By Number of Employees

Less than 50	33 companies	24.8 %
50 - 500	29 companies	21.8 %
500 - 1000	15 companies	11.3 %
1000 - 5000	25 companies	18.8 %
More than 5000	31 companies	23.3 %
Total	133 companies	100.0 %

The wide distribution of industrial robot makers is the result of several factors. The giant electrical equipment and heavy machinery makers were attracted by the high growth potential of industrial robots and entered the field to diversify their business. Many have been motivated originally by the need for robots within their own business to increase productivity and safety, overcome shortage of some skilled workers, and to enhance their ability to undertake small and medium batch multi-product manufacturing. This applies to the large electrical manufacturers such as Hitachi, Matsushita, Toshiba, Mitsubishi Electric and Fuji Electric. It also applies to the heavy equipment manufacturers such as Kawasaki Heavy Industries, Mitsubishi Heavy Industries, Tokico, Shinmeiwa, and Ishikawajima-Harima. Some of the steel makers such as Kobe Steel and Daido, in diversifying their operations into heavy machinery, also were attracted to robots.

Since robot application often must be custom-made for each and every user according to his specific production process, the robot maker, even if small, can specialize ina specific area of application and successfully compete with the big corporations. Some of these smaller companies undertook to produce robots in order to enhance their major products such as Aida in the hydraulic press manufacturing. The production of robots often enabled the manufacturer to offer a total system rather than an individual piece of equipment. This phenomenon is seen mainly among the machine makers such as Fujitsu Fanuc, Toshiba Seiki, Nachi-Fujikoshi and Komatsu. Other small enterprises began to manufacture robots for their own use and then ultimately marketed them. This applies to firms such as Seiko and Sailor Pen. Many firms branched into robots from manufacturing materials handling equipment and conveyors. This included firms such as Tsubakimoto and Motoda.

The Japanese are currently debating the future of this structure of robot makers. Some expect no radical change in the industry structure within the foreseeable future. They believe that the small to medium enterprises will continue to carve out markets for themselves in the many specialized areas. Others visualizing the increasing role of minicomputers and intelligent robots expect that the large electric manufacturing companies because of their superiority in IC and LSI technology, will dominate the robot industry. At present, each individual robot maker has its own area of special expertise such as Yaskawa in arc welding, Kobe Steel in large paint sprayers, Aida in press application, Fujitsu Fanuc in machine tool processing. However, all makers are using the technology developed in their specialty area for applications of other areas. Kawasaki is the most active in this approach with its Unimates entering almost all areas of application. But many other manufacturers are aspiring to be "universal robot makers". The emergence of an electronically-oriented universal robot maker depends on the rate of development of intelligent assembly robots.

Unlike the United States, where two robot makers hold over one half of the market share, the Japanese market is widely dispersed and changing each year. In the U.S., despite the many new companies entering the field, companies actually manufacturing robots probably number less than 20 compared to about 140 in Japan. Kawasaki Heavy Industries has only 3-4% of unit volume of all Japanese robots (by Japanese definition). By the more strict U.S. robot definition, Kawasaki produced 450 of the 3300 robots made in Japan in 1980 for a market share of 18% in units. Because of its relatively higher price, the market share of Kawasaki in value is probably somewhat higher. In many respects the production of robots in Japan resemble the fierce competition that grew up among manufacturers of television sets, digital watches, desk and hand calculators and videotape recorders. After a period of intense competition among many firms, production ultimately was concentrated in a few large firms. It should be noted that this period of competition also resulted in Japanese domination in the world market for these products. As the spokesman for the Long Term Credit Bank of Japan confidently puts it: "It is only a matter of time before the industrial robot becomes one more piece of merchandise which symbolizes Japan".

This industrial structure has given the Japanese several advantages. The American robot manufacturers must sell their robots to users; few can test their equipment in actual production conditions at their own plants. With the entry of IBM, Texas Instruments, GE and Westinghouse into the robot market, this should be altered. But in Japan all through the decade of the seventies the major manufacturers now emerging-Hitachi, Matsushita, Toshiba-had been using robots within these companies. Furthermore, many other companies entered the robot field because they had developed robots initially for their own needs-Sailor Pen, Pentel, Pilot in the pen and pencil industry, Okamura in the furniture industry, Tokico in the compressor industry. Many companies developed robots to sell their own products-Aida, Japan's leading press manufacturer , developed a series of loading and unloading robots for its presses. Fujitsu Fanuc developed a series of robots to service their N.C. machines. In turn, Fanuc's competitors developed robots to stay in competition with Fanuc while Fanuc in turn developed an assembly robot to help reduce the costs of producing its robots. In some cases companies developed robots for affiliates. That Mitsubishi Electric should develop a "Window Cleaning Robot", a fixed sequence machine for high buildings, can be better understood when we know that its sister, Mitsubishi Estate, owns many of the tall buildings in Tokyo's Wall Street. This automatic cleaning operation, reduced maintenance cost, eliminated dangerous work, provided better cleaning, and protected "privacy in offices, hotels, and other places". Toyoda Machine Works provided welding and handling robots for Toyota. Mitsubishi Heavy Industries provided robots originally just for Mitsubishi Motors, its automobile making subsidiary.

Because the robots were used within their own factories, the robot makers in Japan offered for sale not just robots but total systems which already had been tested for several years in their own factories. This compelled companies that had originally just produced robots to begin to develop total systems. One example of this is a completely unmanned computer-run dry noodle factory-which includes an automatic warehouse, battery-operated cars, loading and unloading robots, automatic manufacturing and inspection, and packing.

GOVERNMENT POLICY

It is quite evident that MITI has been interested in robots since the beginning of the seventies. It would seem unlikely that JIRA would have been formed without some government encouragement. However, it was not until 1978 that the industrial robot was officially designated as an "experimental research promotion product" and as a "rationalization promotion product" with promulgation of the special Machine Information Industry Promotion Extraordinary Measures Act. While the Electric Machinery Law in 1971 had defined an industrial robot, industrial robot terminology was first standardized in 1979 under the Japanese Industrial Standards.

Following the typical policy of cooperative rather than adversary relations with business, the Ministry of Trade and Industry (MITI), having identified robot production as a major strategic industry for Japan's future, undertook several measures to popularize their utilization.

(1) With MITI encouragement, if not direction, a robot leasing company, Japan Robot Lease, (JAROL), was founded in April, 1980 with the initial paid-in capital of ¥ 100 million. This company is jointly owned--70% by 24 JIRAmembers and 30% by ten non-life insurance companies. The aim of JAROL is to support robot installation by small and medium-scale manufacturers and increase their productivity. As 60% of operating funds are financed by low cost loans from the government's Japan Development Bank, and the rest from the Long-Term Credit Bank, Industrial Bank of Japan and the city banks, JAROL is in a position to lease industrial robots under conditions more advantageous than the ordinary leasing companies. For its first year of operation (fiscal year 1980), JAROL planned ¥ 700 million robot leases; actually its leasing contracts numbering 52 amounted to ¥ 1,150 million (about $ 57½ million). The average term of the lease was 6.5 years and provided a full payout. In April, 1981 JAROL offered a more flexible 2 - 3 year rental agreement (not a full payout) and after the expiration of the agreement planned to rent the robot to the same or a different user. At the same time JAROL began discussions with MITI to enter overseas leasing of robots. This resulted from a request of an Australian firm to lease Japanese-made robots. Some question arose as to the propriety of using government loans for overseas leasing but JAROL suggested loans from the Japan Export and Import Bank. Positive action on this matter will greatly strengthen Japan's competitiveness in overseas industrial robot markets.

(2) MITI has arranged for direct government low-interest loans to small and medium-scale manufacturers to encourage robot installation for automating processes dangerous to human labor and for increasing productivity. The government budgeted for fiscal year 1980 ¥ 5.8 billion for these loans which are extended through the Small Business Finance Corporation, a government finance agency.

(3) MITI has permitted the manufacturer who installs a robot to depreciate 12.5% of its initial purchase price in the first year in addition to taking ordinary depreciation. This extra depreciation is a common practice in Japan when MITIseeks to promote a particular industry or product. Extra depreciation has been as high as 50%. Generally it can be taken over a three year period and is usually repaid in five annual installments beginning in the sixth year. By installing an industrial robot, a firm can depreciate 52.5% in the first year, 12.5% plus 40% (5 year depreciation double declining).

(4) MITI created an atmosphere favorable to the introduction of the industrial robot, but it had depended largely on the private companies to determine the direction and scale of production and to undertake R & D. However, MITI has now just announced plans for a huge R & D program to be discussed in the following section.

ORGANIZATION OF ROBOTIC RESEARCH AND DEVELOPMENT

Research on robotics in Japan is conducted by three major types of institutions--colleges and universities, national and public research institutes, and research laboratories of private firms. The number of robot research laboratories in universities and public research institutions grew from 43 in 1974 to 85 in 1980. In fiscal 1979, the universities spent 100 million yen (or about $.5 million) on robot research and the public research institutes about 220 million yen (about $ 1 million). This total of about $ 1½ million is hardly a very large amount. But this statistic omits "personnel expenditures" and is therefore a substantial understatement. Some 270 researchers at colleges and universities and 80 researchers at institutes worked on robots in 1979. Public research has concentrated on theoretical problems, many of which have direct and immediate application such as--speed control (acceleration of robot when its gripper holds nothing), improved positioning accuracy, simplification and modularization of robots, sensory perception, pattern recognition ability.

The expenditure of private enterprises on robots has not been made public but up to now has been the overwhelming source of robotic R & D. Of the 107 robot manufacturers surveyed by JIRA in 1979, twenty had a specialized robot research division in their in-house research laboratories, while another fifty-two without a special robot research division had one or more researchers specializing in robot research.

The private research laboratories have concentrated on R & D most closely linked to application--increased speed, miniaturization, computer control, weight reduction and modularization (development of interchangeable robots).

A major change has just occurred--MITI announced a seven year ¥ 30 billion national robot research program to begin April 1, 1982. MITI will create a new R & D group to carry out the program whose purpose is to make robots suitable for a wider application and to develop Japanese robot technology instead of relying on imported American and West European know-how. Stress is to be placed on intelligent robots especially for assembly work, and on robots for nuclear, space, oceanic, and earth-moving industries. The development of sensory perception, language systems, and motional capacity are to receive top priority. This program is called a nationally important major technology development scheme.

SOCIO-ECONOMIC IMPACT OF INDUSTRIAL ROBOTS

This section expresses the Japanese views on this topic and is greatly indebted to Mr. Yonemoto of JIRA, Japan's most prominent authority on this subject. Industrial robots have three major characteristics which, in large measure, determine their socio-economic impact.

1) Industrial robots,unlike special purpose automated machines, are programmable, and, as a consequence, are both flexible and versatile. A robot's movements may be altered merely by changing its program.

2) Industrial robots can perform beyond the physical and mechanical abilities of humans. They do not tire from long and continuous hours of work in an environment which may be uncomfortable, if not hazardous to humans. (They require no breaks to overcome fatigue or to meet personal needs).

3) Industrial robots perform with a high fidelity and accuracy in compliance with the instructions which they receive from man.

As a result of their versatility, super-human capability, and high fidelity to programming, industrial robots have changed in many ways the production scene in which they are employed.

1. Automation of Multi-Product Small Batch and Mixed-Flow-Production Line.

The flexibility and versatility of industrial robots makes possible the automation of multi-product small batch and mixed-flow-line production. The special purpose automated machine is restricted to limited model mass production. Recently, consumer demand has become increasingly diversified to the point where according to Japanese estimates, fully 80% of mechanized industry's products are manufactured in a moderate-to-low volume of output. Thus, the nature of contemporary consumer demand and particularly Japan's desire to accomodate a wide diversity of export requirements necessitated and encouraged the use of industrial robots.

2. Ease of Phasing in Product Design Modification and Model Changeover.

A complete changeover or even a modification in a product model often require changing or at least radically rebuilding a special purpose automated machine. Where an industrial robot is used instead, a mere change in program is required. As the product life cycle shortens, the flexibility and versatility of industrial robots becomes increasingly advantageous.

3. Improved Operating Ratio and Increased Operating Time.

Unlike men, industrial robots can operate on a 24 hour basis and therefore, the machines, they service can also operate on a 24 hour basis. Furthermore, industrial robots are capable of performing functions at a high speed which exceed human limitations.

4. Ability to Withstand Severe Working Conditions.

The industrial robot can work in an environment which is adverse to humans. Human beings require a host of conditions to make the working atmosphere both pleasant and safe-ventilation, proper lighting, air conditioning, or at least temperature control, and a variety of safety devices and conditions.

5. Ability to Execute Proper and Accurate Motions and the Ability to Cope Elastically with Changing Production Volume.

The sustained stability of industrial robot operation--their ability to work continuously and accurately faithful to their man-given instructions--eliminates slumps and spurts and provides a smoother production flow. This ability also enables increased production demands to be met effectively.

6. Change in Nature of Production System.

To the Japanese the introduction of industrial robots means a change in the production system. In the typical traditional mass production line the machine determines the activity of the operators--something pointedly satirized in Chaplin's famous film, "Modern Times". The operator programs the industrial robot and therefore, the human dominates the system. According to the Japanese, the industrial robot reduced psychological resistance to the conveyor system and thus permitted its more effective use. They believe that human satisfaction derived from the human control over the robot and this attitude led to qualitative improvement in labor.

7. Creation of New Technologies.

The characteristics of the industrial robots--combined with the change in the production system to a man-dominated robot-machine system led to the creation of completely new technologies and to their application in exploiting oceanic resources and in increasing utilization of nuclear energy. Robot applications to health, household, and cleaning duties have also been forecast.

The wide socio-economic impacts of the application of industrial robots expected by the Japanese roboticists has begun to be evident.

1. Improvement of Productivity.

The automation of small-batch and multi-product mixed-flow line production saved man-hours and reduced in-process and accumulated inventory. The improved operating ratio and increased operating time also reduced man-hours. The relative ease with which an industrial robot could be fit for a product design changed saved the time usually required for retooling. The more effective use of the conveyor system made possible by the industrial robot also contributed to enhanced productivity.

2. Stability and Improvement in Product Quality.

The super-human capacities of the industrial robots and their fidelity to human instruction led to a uniformity of products and hence made possible the stability and improvement of product quality. By working 24 hours the industrial robot eliminated the incidence of inferior or defective products which often occur during factory start-up operations. The quality variations which result from long hours or the differing abilities of operators were eliminated.

3. Improvement in Production Management.

Production management has improved for several reasons:

a) Reduction of inventory and in-process products as a result of automation of small-batch and multi-product mixed-flow-line-production.

b) Reduction in set-up time and elimination of retooling the production line.

c) The durability and accuracy of industrial robots facilitated production planning.

d) Industrial robots reacting more elastically to production volume change reduced problems of manpower reallocation..

e) Industrial robots have helped to improve the quality of work life and led to greater employment stability. In addition, they have contributed to overcoming the skilled manpower shortage in such areas as welding and painting.

4. "Humanization" of Working Life.

a) Industrial robots released humans from hazardous and unhealthy working conditions preventing accidents and occupational diseases.

b) Industrial robots released humans from monotonous work and thus reduced psychological stress.

c) The man-robot-machine production system eliminated the psychological resistance to the conveyor system, and improved labor quality and human satisfactions from the human control of robots. Such a system corresponded better to a more highly educated and aging society. In recent years, Japan's society has witnessed a growing shift from blue-collar to white-collar occupations and the industrial robot enables corporations to accomodate to this trend. Human resources liberated from adverse work environments and from monotonous repetitive manual jobs are rechanneled into more intellectually demanding robot operations and maintenance positions. For example, manual wire bonding of IC's require the fatiguing performance of monotonous, repetitive tasks under a microscope, and a training period of 4 - 5 months. The industrial robot reduces the training period to 15 minutes and eliminates the fatiguing manual operation.

Robot utilization makes possible greater employment opportunity for the infirm, elderly and female work force in industries where heavy and continuous loading/unloading or carrying a heavy welding gun were required. The "humanization" or work life contributed to employment stability, reducing absences from work.

5. Resource Conservation.

Industrial robots contributed to conservation of resources, a high priority factor especially since the oil crisis of 1973. These savings were achieved in a variety of ways:

a) The robot saved material-the paint spraying robot, for example, used 20-30% less than the manual painters in many operations.

b) The ease of accomodating the robot to product design changes reduced investment in purchasing and/or rebuilding equipment.

c) The reduced defective ratio saved resources.

d) The industrial robot, by working in unpleasant environment, reduced the energy consumption of air conditioning, ventilation, lighting, etc.

d) By its ability to operate on one, two or three shifts, the industrial robot resulted in reducing investment.

ROBOT APPLICATION

Robot shipments are also classified by user which shows the automobile as the primary buyer except in 1980, when the electric appliance industry, which usually occupied second place, took the lead for the first time.

TABLE 12

Breakdown of Industrial Robots by User (In Value)

Japanese Definition

	1974	1975	1976	1977	1978	1979	1980P
Auto	35.5%	19.9%	30.5%	33.6%	34.5%	38.4%	30.0%
Electric Appliance	9.6	12.8	20.9	23.1	24.6	17.5	36.0
Machinery	4.5	5.6	7.6	8.8	7.0	5.3	
Metal Products	5.8	3.8	5.8	3.4	7.1	9.0	
Exports	2.9	4.2	2.3	4.5	2.5	1.9	

(P - Preliminary announcement of JIRA)

However, the automobile industry still dominated the sphere of sophisticated robots.

TABLE 13

Shipments of Playback Robots by User

(4/1/80 - 10/1/80)

	Unit	Value
Automobile	61.5%	52.4%
Electric Appliance	10.3	11.6
Machinery	3.9	8.3
Metal Products	4.4	5.7
Exports	5.9	6.0
Others	14.0	16.0

The large percentage of exports of playback robots compared to the less than 2% export share of total industrial robot production indicates the direction of Japan's export policy.

Since the playback robot seems to be concentrated heavily in the automotive industry, an analysis of the type of work performed by playback could indicate relative use:

TABLE 14

Breakdown of Playback Robot by Work Process

(4/1/80 - 10/1/80)

	Unit	Value
Arc Welding	18.8%	26.0%
Spot Welding	57.1	45.1
Spray Painting	11.3	17.8
Others	12.8	11.1

It is clear that spot welding represents the major application of the playback robots. A preliminary report on 1980 calendar year robot production revealed that compared to 1979, arc welding robots increased 211% in value and 100% in units, and spot welding robots grew 85% and 100% respectively. In addition, assembly robots grew 340% and 33% respectively (certainly from a low base), and press and conveying robots 60% and 6% respectively. The large growth in assembly robots was mainly for insertion of electronic parts into printed circuit boards (an increase of 440% in 1980 compared to 1979).

SPOT WELDING

The automobile industry has until 1980 been the largest single consumer of robot production, in large measure because of its purchases of spot welding robots. The majority of Japanese car bodies consist of 300-400 press-formed parts manufactured from sheet steel which are bonded together by 3,000-4,000 spot welds. In the latter half of the 1960's special purpose automatic multi-spot welding machines were introduced. However, with the tendency to product diversification and the shorter life cycle of car models, the return on investment of the multi-spot welders declined. Large monetary expenditures to modify the multi-spot welders were necessitated by model change-over or design modification. During the modification, a considerable period of time was lost and management expenses were consumed for production line reorganization.

Thus, the robots replaced the multi-spot welders because they only require being taught where to weld in the new model in the event of a model change-over. Often merely one hour is required for the new learning process. As production volume is no longer clearly predictable, it became quite risky to invest in special purpose automatic machines.

Investment in the more flexible robot seemed preferable. The robot also eliminates the need of the manual operator to follow the conveyor line with a heavy welding gun.

The automobile companies then introduced batteries of robot welders. In some assembly plants, a single operator for robots can handle a work load once shared by ten workers. To improve productivity by simultaneous multi-spot welding, efforts have been made to develop multi-arm welding robots and to apply a number of modular robots to welding. Robot introduction into the spot welding line has made possible the automation of multi-product mixed-flow-assembly line on which various model flow one after another.

Nissan has been the largest user of spot welders and by the end of 1980, it had about 300 spot welders. At the same time, Toyota reportedly had 200 spot welding robots, but it ordered 720 robots from Kawasaki Heavy Industries--220 by 3/81, 200 by 3/82, and 300 by 3/83. It has been assumed that most of these would be used for spot welding. Kawasaki is reportedly delivering about 25 units monthly. Mitsubishi Motors has been receiving spot welding robots from Mitsubishi Heavy Industries. Toyo Kogyo and Honda have introduced welding robots.

Kawasaki H.I. is clearly the leader in production of robot spot welders. By spring of 1981, it had delivered 1,500 Unimates primarily for spot welding, and its monthly production rate is 60. Mitsubishi H.I. occupies second place, having delivered 250 robots by the spring of 1981 and with a monthly production rate is slightly over 10. Toshiba Seiki has begun production of a modular spot welding high speed robot which can reach a monthly rate of 35-50. Toyoda Machine Works is also making an inexpensive building block system spot welding playback robot, but they will not be offered for public sale until the fall of 1982. Toyoda expects to sell 1,000 units annually. We do not know how many of these have already been shipped to Toyota. By 1983, Toyoda Machine Works and Toshiba Seiki, if they should be successful in their modular and simpler spot welding robots, could occupy a significant market share.

ARC WELDING

Arc welding operations are conducted in an extremely unfavorable environment where carbonic acid gas, fumes and heat are generated. As a result, arc welders must wear masks and consequently, must take time out frequently. Some loss of operating time is, therefore, inevitable. In addition, the new generation of young workers, being better educated, tend to shun arc welding. As a consequence, arc welding was particularly susceptible to robotics.

However, the large-sized robot such as the Kawasaki Unimate, which could handle heavy loads could hardly be justified economically by an application which largely used light weight welding guns. Yaskawa Electric Mfg., at present, dominates the arc welding robot applications with its relatively low-priced playback robot. Shinmeiwa developed arc welding robots for work on heavy plates while Osaka Transformer developed arc welding robots for work on sheets. Kobe Steel has produced a more expensive, continuous path control, arc welding robot. Hitachi had produced two robots suitable for arc welding: a sophisticated intelligent robot, and a low priced articulated playback robot. Matsushits has introduced a very competitive arc welding robot.

With Matsushita entering the arc welding area and with Hitachi capable of substantially increasing its output, it is entirely possible that these two firms will ultimately dominate the arc welding market.

SPRAY PAINTING AND COATING

Painting robots are the third largest type of playback robots and are now growing at the same rate as spot welding robots but not as fast as the arc welding robots. Spray painting and coating offer a rich area of application. To become skilled, a coating worker required 2-3 years of experience. However, the poor working environment and the tendency to a more educated society contributed to a developing skilled worker shortage. The necessity for a large percentage or rework made production planning difficult.

The industrial robot provided certain advantages in painting:

1) They insured stability of product quality and therefore made possible improved production planning and control. Despite the selection of the most skilled workman for finish coating, the quality of the finish varied according to the workers and the conditions of the day. In automobiles, the paint finish of a car, and especially its uniformity, is a determining element in the Japanese domestic consumer preference.

2) They made possible a multi-product mixed batch coating line.

3) They provided continuous production operation and reduced the need for intermediate stocks.

4) The manual workers and special purpose automatic coating machines tended to increase the use of paint to preclude uneven coating, especially in complicated shapes. In addition, special purpose automatic coating machines tend to overspray paint on smaller products in a multi-product coating line. In the case of spray painting an auto body, a savings of 10-20% in the use of paint has been effectuated. Reducing the amount of paint reduced the need for ventilation and therefore, saved on energy consumption.

5) Spray painting is a very unhealthy job because of the chemicals and dust. The spray painting robot could free the operator from staying in the spray booth. It provided a relatively simple way to meet safety regulations.

Kobe Steel introduced the Norwegian Trallfa spray painters--a rather expensive robot. Both Hitachi and Mitsubishi Heavy Industries worked with other firms--Nihon Parkerizing Co. and Iwata Air Compressor Mfg. Co. respectively to develop playback spray robots. Tokico offered a large variety of low priced painting robots while Nachi Fujikoshi offered a spray robot with both remote and direct teaching.

Considering the demand for spray robots (Nissan alone is reportedly seeking 300 units) it seems evident that production objectives will be increased. It is still too early to predict the future market share as changes are expected shortly, at least in Hitachi.

MACHINE LOADING AND UNLOADING

Industrial robots have been applied to a wide variety of production processes in which the basic breakdown of the process indicated that the robot is being used primarily, if not exclusively, for (1) loading and unloading, (2) trans-shipping and (3) palletizing and depalletizing. This refers to applications in the following areas:

1) die casting
2) forging
3) press work
4) plastic molding
5) machine tool loading
6) heat treatment

In each production process, fierce competition exists between those who designed industrial robots, often relatively unsophisticated, for particular production processes and the universal robot makers who offer playback and intelligent robots. In most cases, however, the specialists seem to have won out as of now. In press working operations Aida Engineering seems to have won dominance though strongly challenged by Toshiba Seiki. Similarly, Fujitsu Fanuc seems to enjoy supremacy now in the loading of machine tools, although Kawasaki H.I. has mounted a strong challenge.

In plastic molding (the automatic unloading of injection molded products) the small manufacturers dominate. Ichikoh Engineering Co. and Kyoshin Electric offer a complete line of fixed sequence machines. Star Seiki offers both fixed and variable sequence robots. Sailor Pen, likewise, offers relatively unsophisticated machines. For unloading workpieces from a die casting machine, Ichikoh offers its fixed sequence machine while Shoku and Daido offer variable sequence robots.

For putting workpieces into a furnace Shinko Electric has a relatively sophisticated variable sequence robot. Nachi Fujikoshi offers a specially designed robot to tolerate hot temperature which has been used to transfer workpieces from a furnace to a press.

In the forging area, a great number of robot makers offer a variety of specialized products: Aida, Kobe Steel, Komatsu and Nachi Fujikoshi.

MACHINING

In Japan one operator of NC machine tools serves on average less than two NC machine tools. This low ratio is the result of manual loading and unloading of the work pieces, manual disposal of chips and maintenance. Many Japanese firms sought robotic solutions to this problem. One of the consequences of the application of robots to machining besides improved productivity was improved production management. Robots could respond more elastically to changes in production volume and in the event of temporary requirements for increased production they could easily be worked overtime. Where the process was computerized, it was possible to know beforehand when a machinery operation would be completed.

While several other companies manufacture robots for machining Fujitsu Fanuc dominates this application area with an output of 100 units monthly. The Fanuc Model 0 uses the NC of the single machine tool which it services; the Model 1 and 2 (known in U.S. as 3) have their own NC and service up to two and five machines respectively. These machines make possible an unattended machining system that operates automatically at night.

The entry of Fujitsu Fanuc into robots has caused some of its competitors and some of the machine tool manufacturers to develop and produce robots of their own. This is especially true of Okuma which supplies its own NC for its machine tools. In addition, Yamatke-Honeywell and Ikegami Iron Works have started production of NC robots. Fanuc plans to introduce additional models in the summer of 1981.

Fanuc's competitors now are other manufacturers of robots who have modified their products to service machine tools.

TRANSFERRING

Closely allied to the machine loader/unloaders are the robots which are engaged primarily in the transfer of materials. Many robots equipped for specialized processes such as welding and painting can also be modified for transferring of materials. In addition, many conveyor equipment manufacturers were compelled to produce robots to compete with robot manufacturers entering their market. Some robot makers entered the materials handling market trying to carve a special niche for themselves.

Shinko Electric, Taiyo, and Kayaba Industry are manufacturers of machine loading robots that entered into the transfer field. The conveyor manufacturers that entered the field include Tsubakimoto and Sanki Engineering. The "universal robot makers" offering machines for transferring include Kawasaki, which offered modifications of its Unimate for that purpose, Daido Steel, Yaskawa, Nachi Fujikoshi and Toyoda Machine.

Some firms specifically developed a line of materials handling robots. Dainichi Kiko has developed a line of heavy duty transfer robots. Motoda (now Oriental Terminal Products) makes a complete line of what is described as multi-purpose versatile robots in both variable sequence and playback versions. Their major, if not exclusive, market, seems to be the materials handling area but Motoda claims that these robots can be used for welding and spray painting. Toyo Keiki has developed a series of variable sequence robots specifically dedicated to palletizing and depalletizing. The entire area of transfer robots like the area of machine loading robots is still too greatly splintered to provide a meaningful market share analysis.

ASSEMBLY ROBOTS

Assembly robots capable of inserting, screwdriving, bonding, and similar processes exist largely either in the R & D or the early application stage in Japan. Most major electrical manufacturers, such as Hitachi, Matsushita, Mitsubishi, NEC, Oki, and Fujitsu, have developed fully automatic systems for bonding. All these use cameras for visual perception to position by shape or pattern and in the case of Hitachi and Mitsubishi Electric, to detect defects. Fuji Electric's "Checker robot", which examines and rejects pharmaceutical pills is not a robot but does advance both visual (by use of a camera) and tactile perception for quality inspection.

In addition, special purpose automatic assemblers provided considerable data for constructing assembler robots. Hitachi built for Nissan an automatic tire fitting system which uses a machine hand to detect the hub bolts, position them, and tighten them. Hitachi also developed a fully automatic system for fitting rubber belts to tape recorders from which they learned assembly principles suitable for automobile and electric appliance belt fitting.

Hitachi manufacturers an intelligent robot with a 25 step memory capacity and a 200g. load capacity that can fit different components one by one in a specified order. The robot moves fast requiring only 1-2 seconds to fit workpieces. Its finger support is flexible to prevent excessive force. Its positioning precision does not have too close a tolerance but a special searching function automatically detects the holes of workpieces and fits them properly even when positioning is not accurate. An automatic rejecting function within the robot prevents assembly of defective workpieces.

Both Hitachi and Matsushita have built experimental robots to assemble electric vacuums.

The larger electronic/electrical manufacturing companies are planning to robotize 50-75% of their assembly operations by 1985. This would indicate that far more activity and experimentation has taken place than has so far been publicly revealed. (Still this forecast seems too optimistic to me.)

In March, 1981, Hitachi publicly announced a task force of 500 key technology experts to fashion and install a standardized assembly robot with both visual and tactile sensors, microcomputer control, and mobility and projected a 60% robotization of its assembly processes by 1985. In April, 1981, Matsushita announced a plan to marshall the entire staff of its technological division to develop intelligent industrial robots controlled by microprocessors and modularized (BBS). Matsushita revealed that some BBS robots were already functioning at its plants. The new robots were to be of three types (1) robots that position workpieces accurately, (2) robots that assemble workpieces, (3) robots that adjust the finished product to function as originally designed.

NEC then reported that it had developed a factory robot that assembles electronic machinery and appliance parts and components with a speed of 45 centimeters per second and a positioning accuracy of only 8 microns. The high precision and speed has been realized by computerization and by the application of the principle of electronic magnetic repellance, utilizing the linear-motor levitation technology that has been used by the Japanese National Railways in developing the "floating" train. The NEC linear-motor driven robot arm and hand picks up a machine part or component with a maximum load of 2 kilograms and carries it around by making it float over the work table. The high precision of movement is achieved by the robots's set of 16 sensors (visual) supported by a built-in microprocessor. NEC has been producing these assembly robots so far for its own factories and those of affiliated companies and in 1981 NEC plans to manufacture 50 units of these assembly robots.

In June, 1981, Ishikawajima Harima Heavy Industries, a close ally of Toshiba, announced plans to produce its Group Manipulator Module System (GMMS) with an articulated arm with the most advanced parallel circuit-type 16K RAMS in its microprocessor. In October, 1981, the GMMS will be tested (possibly at Toshiba?) and hopefully would be marketed by September, 1982 the latest.

Fujitsu Fanuc has also developed an assembly robot but no details are known except that it is being used at their new Fuji plant. Fujitsu is working closely on robot development with its affiliate.

The heavy emphasis on assembly and sense perception by both the private firms, universities, and public research institutes would seem to indicate the possibility of achieving the goal of popularization of assembly robots by 1985. As will be discussed later, the Japanese consider that the intelligent robot is an important element of export policy for the future.

BUILDING BLOCK SYSTEM (BBS)

The trend to incorporate various models into a single production line and to run these lines at higher speeds created some problems for the conventional universal type spot welding robot. In a mixed-flow production, line robot capacity was not fully and efficiently utilized. Furthermore, it required a large floor space for installation.

After a year of development and design and a half year of testing a new robot, the BBS became operational in May, 1978. The BBS is more compact in size and therefore, lower in cost than the conventional robot. It is a fully articulated multi-welding system wherein one control panel can control simultaneously up to 8 units (48 axes) and a hydraulic unit, separate from the robot's main body, controls three robots.

A study of two years of operation of the BBS welding in an auto plant indicated that its investment efficiency was 30% greater than a conventional robot system. The floor space required was reduced almost in half. The downtime of a BBS robot was one third of the downtime of a conventional robot.

BBS is the aim of most of the makers of sophisticated robots. How many of these building block systems are now operative in Japan is not known, but the several years of experience and the concentration of private research laboratories on the BBS would tend to substantiate the Japanese expectation of a substantial increase of the BBS far beyond application only to spot welding. Toyoda Machine Works and Toshiba Seiki have developed successful BBS robots but detailed production information for these companies and other BBS makers is currently unavailable.

FROM ASSEMBLY ROBOT TO FLEXIBLE MACHINE SYSTEM

The ultimate aim of the assembly robot is the creation of a comprehensive flexible manufacturing system (FMS) sometimes called the "unmanned factory". Such a system as exemplified by Fuji Electric's turnkey noodle factory would combine industrial robots with an automated warehouse, unmanned transport vehicles, belt conveyors, and computers which would simultaneously operate and record production.

Fujitsu Fanuc has invested ¥ 8 billion to create such as factory at Fuji to serve both as an automated manufacturer and a showroom. Its production capacity can be expressed in terms of monthly sales of ¥ 1.5 billion or in terms of production output--100 industrial robots, 150 electric discharge wire cutting machines, 100 numerical controls. The total number of employees is 100--19 machine processors, 63 assemblers, 4 inspectors, and 14 management and clerical personnel. A factory of this scale normally requires five times as many people.

The Japanese argue that the FMS actually results not only in reduced labor costs but reduced capital investment. Fuji operates 24 hours a day (unmanned at night) and equipment utilization ratios are close to the maximum. Furthermore, model changes can be made easily. With robots, machines need not be replaced or rebuilt; only the program must be changed. Prior to the introduction of industrial robots, factories often shut down for months to make the required alterations for a model change. In addition, a substantial amount of peripheral factory equipment such as lighting (the robots run at night in an unlighted plant), air conditioning and atmosphere control became unnecessary, at least in those areas where robots work without humans in proximity. Finally, the miniaturization of industrial robots, which is beginning to take place, will enable robots to be positioned very close to each other permitting a higher degree of efficiency in space utilization, a major element in Japan where industrial land is relatively scarce and high-priced. This plant contrasts sharply with the custom-made, almost handicraft assembly of many American robot manufacturers. The ability of Fanuc to increase its output swiftly is understandable; when they speak of an ultimate capacity of 360 units per month of industrial robots (which I presume includes both machine loading/unloading robots now being sold and their new assembly robots) it seems quite feasible.

FUTURE OF JAPAN'S INDUSTRIAL ROBOTS

The demand projections for rapid growth are based on the following analysis:

(1) The intelligent robot with an internal microcomputer and sensory perceptions has emerged and its field of application, especially in assembly and inspection, will widen and expand very rapidly. The announced plans of the major electrical manufacturers should provide substantial markets within each company and its affiliates.

(2) The shortage of skilled labor and the aging of the workforce will hasten the acceptance of industrial robots.

(3) The ability of industrial robots to work in adverse work environments resulting in savings on anti-pollution devices and energy will also accelerate acceptance of industrial robots.

(4) The government policies of financial aid and accelerated depreciation will encourage the use of industrial robots among the small and medium corporations. To the extent that such firms are suppliers of the larger process industries, they will be compelled to introduce industrial robots to provide swift on-time delivery of components, (the Komban System of Toyota).

(5) To increase Japan's competitiveness in international markets not only against the advanced Western nations, but also against its low labor cost competitors in East Asia (South Korea, Taiwan, Singapore, Hong Kong), Japanese firms are being compelled to automate.

(6) As demand for goods becomes less uniform and more diversified, small and medium batch multi-product production and constant modification will become predominant. The industrial robot, especially the BBS, has greater flexibility than the dedicated, single purpose automatic equipment.

(7) Japan has made robots a top priority both for research and production and an unrestrained effort is being made in that direction.

(8) The Japanese expect a substantial expansion of robots to areas

other than the process industries such as electrical and automobile manufacturing. In agriculture, robots will be used for crop dusting and spraying chemicals, harvesting fruit trees, tilling ground and even milking and feeding of cows. The Japanese expect robots to be used in many aspects of forestry.

A top priority has been given to underwater geological surveying and welding and machining (under 300 meters). Komatsu already has an underwater robot being used in bridge building. In mining, robots are being developed to work coal and ore faces. Robots are also being planned for building construction (especially multi-storied) and road construction. In the service industries robots are being developed to clean walls and floors of buildings, cleaning of boat hulls, cleaning electrical insulators in nuclear energy. The Japanese also expect to expand robot use in the hospital and the home. However, it should be emphasized that the top priority for the first half of the decade remains the intelligent robot for assembly.

(9) Japan expects to be a major exporter of industrial robots. This requires some additional comment.

The Japanese expect that Western Europe and the U.S., as well as Eastern Europe, will make strong efforts to increase worker productivity. These "reindustrialization" programs will necessarily involve increased use of industrial robots and Japan plans to export them. While exports of robots were less than 2% in 1980, the Japanese expect that in 1985 and 1990, exports will constitute about 20% of production.

The Japanese attitude is expressed in the following view of Machida of the Long Term Credit Bank: "The industrial robots presently in use are, technologically speaking, still in their infancy. During the 1980's they will mature from boyhood to the young adult stage. At present, Japan is the number one country qualified to be the parent of this child".

Accepting the challenge of Japan's lack of innovativeness and creativity, Machida wrote "It has been said that Japan cannot be victorious in the pioneer technology which is producing sophisticated, knowledge-intensive products because we do not possess high creativity. However, the expanding exports of Japanese intelligent robots will soon bear testimony to the fact of our international competitive strength, not only in improvement technology and application technology, but in pioneer technology as well".

Machida concludes his overview asserting that the "intelligent robot is representative of the leading edge of technology products" and that "the growth of the industrial robot industry will bear eloquent testimony to our strong international competitiveness even in the area of state-of-the-art technology". These views reflect the Japanese attitude of placing major stress on the export of intelligent robots as proof of Japan's creativity.

Returning to the estimated demand forecast, the most substantial growth through the eighties will be the intelligent robot. Playback and NC robots will grow at an accelerating rate in the first half of the decade, but should slow down in the second half. Variable sequence robots will also grow significantly in the first five years but level off in the second five years. The manual manipulators and fixed sequence machines show growth but their total share of output will decline significantly in value terms. Thus, in 1974, the sophisticated robots constituted 10.8% of total value; in 1980 26.4%, in 1985, 41%, and in 1990, 45%.

In terms of production, the two processes certain to grow throughout the decade will be assembly and inspection and measurement, probably at a rate of almost 40% annually. Spot welding, arc welding, and machine loading will continue to grow but at a decelerating rate. Spray painting should maintain continuous growth. In 1985 the production process for which robots are produced have been estimated as follows (in % of value).

1)	Assembly	21.7%
2)	Machine Tool Process	13.1
3)	Arc Welding	10.5
4)	Inspection	10.0
5)	Spot Welding	7.5
6)	Spray Painting	5.0
7)	Molding	3.3
8)	Others	28.9

How will the U.S. and Japan compare in the future? Using the U.S. definition of robots the following table includes the latest estimates.

TABLE 15

U.S.-Japan Comparison

Industrial Robots (U.S. Definition)

	Units		Value (million $)	
	U.S.	Japan	U.S.	Japan
1980	1,269	3,200	100.5	180
1985	5,195	31,900	441.2	2,150
1990	21,575	57,450	1,884.0	4,450

This is probably the best estimate of the future, assuming a continuation of those elements presently at work in each country. If we learn anything from history, it is that the future is never a simple continuation of the present. Therefore, hopefully the estimates remain "tentative and preliminary".

FOOTNOTE: While I alone am responsible for this report and its conclusions, many others provided assistance. In particular, Mr. Karl Kamita of Daiwa Securities ably researched and translated numerous articles on robotics in Japan. The works of Mr. Yonemoto of the JIRA, Mr. Machida of the Long Term Credit Bank of Japan, Prof. Ueda of Nagoya University, and Mr. Engelberger and Mr. Tanner, two "veterans" of U.S. robotics, not only added to my fund of knowledge but greatly influenced my thinking.

Paul H Aron

Paul H. Aron,
Executive Vice President
Daiwa Securities America Inc.

Senator **Hawkins**. Senator Proxmire, do you have any more questions?

Senator **Proxmire**. Yes. I'd like to ask Mr. Bradford just one question. At the very end of your prepared statement, Mr. Bradford, you say, "In my judgment, antitrust legislation and regulation is another matter that needs attention. The original intent, the prohibition of unjust enrichment from monopoly power, has given way to stopping bigness as though bigness were an economic problem in itself." You go on to say at the end, "From an international economic view, the key to proper antitrust regulations, I believe, is to allow efficiency—enhancing mergers so long as no unjust enrichment is occurring."

Don't we have problems with truly competitive markets that are quite common? Do we have enough competitors in steel, for example, in automobiles, and some of these other areas so we can simply permit big acquisitions without a feeling that the market will not be able to regulate because the market is just too imperfect?

Mr. **Bradford**. For example, I believe before you arrived I made a comment to the effect that we should not look at the number of competitors within the United States. We are in one world. We have Japanese cars of a number of varieties coming into the United States. They are competitors in this market. It is not the "Big Three" or "Little Four" or whatever, but we must look worldwide.

In the case of the steel industry, which I know more about, I think we have way too many competitors. In the example I used, I mentioned Youngstown, Ohio. The four plants that existed in Youngstown, Ohio, by themselves, were not of economic size. Even combined, they would not really be of economic size a la the most modern steelmaking technology. We don't have a single steel mill in the United States as large as the modern ones being installed in Japan or Korea, which is the next point to worry about, or other places of that nature where they are building 10-million-ton plants with low labor costs. Japan is not a low labor cost area, but it's $1.50 an hour in South Korea. But a modern plant has certain configurations based on technology. I hate to bore you with three-blast furnaces and so on. We have an incredible number of 2-million-ton plants when they need to be 10 million ton. It doesn't take many more people to push a button on a 10-million-ton plant as a 2-million-ton plant.

Senator **Proxmire**. Are you saying United States Steel is too small and it should be bigger?

Mr. **Bradford**. I said their average plant is much too small.

Senator **Proxmire**. Their average plant may be too small. That's a matter of the judgment of the corporation, but do they have too small a capital base to build a plant that would be efficient?

Mr. **Bradford**. Yes.

Senator **Proxmire**. They should be bigger than they are?

Mr. **Bradford**. A modern plant today would cost—a full sized plant—you wouldn't build it all at one step; you would build it in three steps, but it would be over $10 billion and United States Steel's capital is currently $5 billion.

Senator **Proxmire**. Take the automobile industry. Do you really feel that we are one world when we have the kind of agreement that we have to keep out the Japanese cars that's been negotiated by the administration? Doesn't that really make your one world argument pretty weak and isn't that common throughout the world. The French and the English I understand do the same thing, keeping Japanese cars out.

Mr. **Bradford**. I was talking in a more abstract way. We happen to believe in free trade.

Senator **Proxmire**. I agree with it too, and I was against that kind of agreement, but it's a fact of life. That's something that's been done.

Mr. **Bradford**. I think the Japanese are still very strong competitors in the United States in the automobile industry.

Senator **Proxmire**. But we regulate the competition. We limit the competition.

Mr. **Bradford**. I think ideally, we would not, I would hope. I'm with you.

Senator **Hawkins**. And me.

Mr. **Bradford**. I think in the case of steel, the same thing is very true. There are regulations in a few countries that make it difficult, and by and large we are one of the guilty ones in the trader price system which is a system of regulating imports, but there are others guilty too, and ideally, it would not be a problem.

Senator **Proxmire**. But you would have no hesitation about encouraging the Justice Department to attack a large merger if the large merger inhibited effective competition. You say the test ought to be competition, not size, and if you have a large merger that would permit greater efficiency, you would approve of that, but if the large merger were a merger that prevented effective competition, would you feel it should or should not be prosecuted?

Mr. **Bradford**. The terminology I used was unjust enrichment. I believe you should obviously limit somebody from using a monopoly power for unjust enrichment at the expense of the public.

Senator **Proxmire**. Unjust enrichment—why shouldn't the objective be a market system that works, that's competitive, so that there are forces at work that would bring—without Government interference, forces at work that would bring prices to a level that would comply with efficient production?

Mr. **Bradford**. I think we are essentially talking about the same thing.

Senator **Proxmire**. But unjust enrichment and competition is a different thing.

Mr. **Bradford**. I would say, as a financial analyst, it's easier to measure that than to measure how many companies make a competitive industry.

Senator **Proxmire**. Can you give me an example of a company that's been unjustly enriched?

Mr. **Bradford**. To the effect of above the average——

Senator **Proxmire**. Give me one specific example ever of a company that was unjustly enriched.

Mr. **Bradford**. You might want to go back to the oil industry in the days before it was split up where the profitability was high. I don't have those figures.

Senator PROXMIRE. Well, you're not sure of—the one you have to go back to is in 1900 or so and John D. Rockefeller.

Mr. BRADFORD. I would just have difficulty saying you could have 10 competitors in an industry or should it be 4 or 50. I don't know what makes that number or any number valid. What I would look at is is the industry using its monopoly power to make an above average profit and keep out competition to enable it to continue to keep this abnormally measured against the average American industry profitability. If it had abnormally high profitability and it was using its power to keep out competition, then I'd say you have a problem.

Senator PROXMIRE. Abnormal profitability—it seems to me I'd go the other way. I'd say abnormal profitability is great. The more profits the firm makes, more power to them; super, as long as there's vigorous competition.

Mr. BRADFORD. As long as they allow the competition to come in, I would agree with you.

Senator PROXMIRE. As long as there's freedom of entry and as long as you have a situation in which you can get other firms to try to also get in on the gravy.

Mr. BRADFORD. I would agree to that.

Senator PROXMIRE. All right. Well, I just have a little trouble with that unjust enrichment because it seems to me if people can make it by being superbly efficient and so forth, that's great. I'm all for it.

Senator HAWKINS. It's certainly been an interesting and useful morning as we approach the noon hour. Mr. Tanaka's thoughtful and cogent responses to many questions is certainly appreciated. We thank you. Mr. Bradford's detailed understanding of regulatory issues is most enlightening. Mr. Howe's positive suggestions point the way for useful change.

I'm going to ask all members of this committee who are not here today to please take the time to read the record of this proceeding this morning. I think it would be most helpful because these hearings really are a search for practical economic policy application and, gentlemen, you have greatly assisted us in this search. Thank you so much for your participation.

[Whereupon, at 11:55 a.m., the subcommittee adjourned, subject to the call of the Chair.]

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